AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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THE DAY'S WORK OVER.

Drawn and Engraved for the American Agriculturist.

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May.

The robin, the forerunner of the spring;
The bluebird, with its jocund carrolling,
The restless swallows building in the eaves,
The golded buttercups, the grass, the leaves,
The lilacs tossing in the winds of May,
All welcomed this majestic holiday.—LONGFELLOW.

The Founder of the American Agriculturist.

The *American Agriculturist* for last November contained a superb portrait of Mr. A. B. Allen, who, together with his brother, founded the *American Agriculturist*. It was accompanied with an interesting description of a visit to the venerable Mr. Allen, by Dr. George Thurber, who has been the Editor-in-Chief of this journal for nearly a quarter of a century. To such new subscribers as may desire this number, it will be mailed on receipt of the price. Or, better still, we will, on the receipt of one dollar, forward one of these engravings, printed on heavy paper and highly finished, to any person who may desire to have this splendid portrait of the gentleman who founded the *American Agriculturist*, and controlled its destinies until the present staff were selected to succeed him.

May Greeting.

At this period our rural readers are everywhere bending their energies to the preparation of the soil for the crops which we trust will yield them abundant harvests. Scattered all through the pages of the *American Agriculturist* are hints and suggestions which will prove of not a little interest to them, and we hope to make each succeeding number more valuable than its predecessor.

Worcester's Unabridged Dictionary.

For ten dollars we will send the *American Agriculturist* for five years to one address, and likewise a copy of Worcester's Unabridged Dictionary, very latest edition, Price $10.00. This offer, which will be continued but for a short time, enables present subscribers to extend their subscriptions for five years and at the same time to avoid the trouble of yearly renewals.

Important.

Will our friends in writing us please be sure and place in full at the head of all letters the name of their town, County, and State. Not a day passes that we do not procure from the post marks on the envelopes, the correct addresses of many people writing us. Be sure and not forget your full address and *our* full address, to wit: Publishers of the *American Agriculturist*, 751 Broadway, N. Y.

To Subscribers.

If your paper does not promptly reach you, or if there be the slightest delay in receiving a response to any communication sent to this office, please immediately drop a postal directed to the Secretary of this Company, notifying us of the fact.

The Amerikanischer Agriculturist.

Please direct your German friends and acquaintances to the announcement elsewhere, regarding the *Amerikanischer Agriculturist*, the only purely German agricultural journal in the United States.

Something for Every Home.

Read full description elsewhere of what every person in this broad land should hasten to possess.

New Premiums.

Elsewhere are described some new and valuable Premiums presented to those who aid us in extending the circulation of this periodical.

Every subscriber to this journal will please turn to pages 226 and 227 for matters of special interest.

FARM AND GARDEN WORK FOR

MAY.

This, to the majority of our readers, is the corn-planting month. No other crop so demands that "we make haste slowly," as this. Corn being a tropical, or at least a subtropical, plant, it requires a higher temperature for its germination and growth than do natives of temperate regions. The Indian's rule for planting, when "the young oak leaves are as large as a squirrel's ear," and the rule of the New England farmers, to plant when the shad-flower bush is in bloom, are only different ways of saying, "wait until the ground is warm." By whatever natural sign the time may be fixed, it will be found that the season is so far advanced that the thermometer averages sixty degrees in the shade. Corn is a rapid grower, and demands a large amount of plant food, and some quick-acting fertilizer may be profitably sown with the seed, to give the young plants a good start. The manure from the poultry house may be best disposed of here. Whether to plant in hills or drills, should be determined by the condition of the soil. Planting in drills gives more plants, and consequently a greater yield to the acre, and is best on clean land; hill-planting allows the crop to be worked both ways, and is preferable on weedy soils. The chief enemies to sprouting corn are various cut-worms and grubs below ground, and crows and blackbirds after it is up. Tarring the seeds will keep off insects. A pint of warm tar is stirred with a peck of seed, until every kernel is evenly coated, then roll in plaster. Birds are kept off by scarecrows of some kind; clattering windmills being among the most effective....Grass lands should be put in order for the mower by rolling; pick up fallen branches and whatever rubbish will obstruct the machine. No sensible farmer will pasture his meadows in spring. A hundred pounds of nitrate of soda to the acre will be a profitable application, as will a bushel or two of plaster to clover....As soon as the soil is ready, plant potatoes. Early planting of early varieties is advisable where the beetle is troublesome. If "the bug" attacks the crops, do not delay the use of Paris green....If root-crops are not grown on the farm, try a few mangels this year; next year there will be a field of them. Mark off rich, well-mellowed soil in fifteen-inch rows, and drop a few seeds at every foot; cover an inch deep, and make the soil firm over them. When well up, remove all but the strongest plants. Some of the globe varieties are to be preferred to the long kinds....Fodder crops to follow the rye must be provided. As soon as a strip of rye is cut off, plow, and sow early sweet corn or oats, for a succession of fodder.

Live Stock Notes.

Horses and oxen are the motive power of the farm. If we ever have steam power instead, we shall still be obliged to use fuel. If we do not give these living engines the fuel, or food they need, it is folly to expect work. The steam engines need care and oil, the animal engines must have the card and brush to lubricate the moving parts. An occasional feed of green rye will be relished by horses. On all but stony land, they will work with more comfort if unshod....Oxen, though slow, are often better on small farms than horses; if given time at their work, and while feeding, they will accomplish more than if hurried....Make the change of cows from dry feed to pasture very gradual.

Give salt to prevent injury from over-eating of succulent grass. Bring up early, and feed hay with roots, and give hay in the morning, before they go to pasture....Calves, when they are first pastured, are often attacked by "black quarter," and other diseases due to a sudden change of food. An ounce of Epsom salts given when first turned out, will do much to prevent trouble....Ewes from which lambs have been taken, often suffer unless their distended udders are relieved. Tag the sheep before they go to pasture. After sheep are shorn, the ticks collect upon the lambs, which will need a dip of tobacco water....If the orchard is not in clover, it is not at its best for both fruit and pigs. Pork can be made very cheaply on clover, to be finished on grain. Young pigs at pasture should have a coop which they can enter, but which excludes the older ones; keep a dish of milk or slops in the coop... Profit in poultry keeping depends on having eggs when they are scarce, and sell at high prices. To have such eggs, we must have early layers next fall, and these are secured by early hatchings now. Coops to confine the hen and allow the chicks to run, may be profitably placed here and there in the garden.

Fruit Garden.

If trees were dug early and heeled-in in a cool and shaded place, planting may still be continued. If any trees have started, they will need careful handling, and should not be cut back at the time of planting.....Newly planted trees will endure the drouth much better if the soil around them is mulched; frequent stirring of the surface soil will answer the same purpose...Grafting may be continued, even if the buds have begun to expand, but great care must be taken, as the bark slips readily, and a bad wound may be made. Buds that appear below a graft should be rubbed off as soon as the buds upon the cions begin to grow.....Give strawberry beds a mulch of straw, coarse hay, or even corn stalks, to keep the fruit from being soiled. Sawdust and tan should not be used, as they adhere to the fruit. In southern localities, fruit for northern markets must not be picked too ripe; if to be over twenty-four hours in transit, no berries should be full-colored when packed....New shoots of blackberries and raspberries will start from the roots; select three or four from each stool for next year's fruiting, and hoe up the others....Currants and gooseberries should be mulched. Upon the first appearance of holes in the leaves, kill the worm with white hellebore, using a tablespoonful of the powder to a pailful of water; apply with a syringe or garden-pump....Newly planted grape-vines should bear but a single shoot the first year; rub off all others, and keep that tied up to a stake. The leaf-rolling caterpillar, found among the leaves of a growing shoot, is best destroyed by hand-picking. If rose-bugs appear at flowering time, shake off early in the morning, and catch in a pan containing water with a little kerosene....Thinning fruit for the benefit of that which remains, is worthy of trial. Remove from half to two-thirds of the crop soon after it sets....The fight with insects must be kept up. The webs of the tent-caterpillar will be spread, and should be destroyed while small. The caterpillars are in the nests in early morning, and the webs are most readily seen when the dew is on them. They are quickly removed by the hand, with or without a glove. If fine sawdust is seen on the ground near the trunk, a borer is at work and must be removed, using a strong knife and wire probe. The curculio attacks the plum soon after it is set. Jarring the tree and catching the insects on sheets spread below, is the only remedy. Paris green is now used upon fruit trees, to kill the canker worm and codling moth or apple worm, using a tablespoonful to a barrel of water, and applying with a pump....On the very first appearance of the black knot, cut it out.

The Time hath laid his mantle by
Of wind and rain and icy chill,
And dons a rich embroidery
Of sunlight poured on Lake and hill.
No beast or bird in earth or sky,
Whose voice doth not with gladness thrill
For Time hath laid his mantle by
Of wind and rain and icy chill.
River and fountain, brook and rill,
Bespangled o'er with livery gay
Of silver droplets, wind their way,
All in their new apparel vie,
For Time hath laid his mantle by
Charles of Orleans
Paul O. Mueller
AMER. AGRI.

Drawn (by Paul Mueller) and Engraved for the American Agriculturist.

Kitchen and Market Garden.

Those who change their place of residence on the first of this month should not be discouraged by the lateness of the season. Late sown seeds will come on rapidly, and as various vegetable plants may be purchased, but little will be lost by the late beginning.... Corn-planting time may be adopted as that safe for the seeds of squashes, melons, and all of that family, and for beans and other tender plants ..... Asparagus should be all cut, whether needed or not. For market, make into bunches and keep upright in the dark. The first cutting of a new bed should be moderate. ....Lima beans usually fail if a cold storm follows planting, and must be replanted...Sow succession crops of beets, peas, spinach and others, to keep up the supply. ....Beets, carrots and other root crops should be thinned freely, and the weeds in the rows removed.....Cabbages and cauliflowers are forwarded by frequent and deep hoeing. Sow seeds of these in the open ground for late crops. If the Savoy cabbages are not grown, try them. ....Sow celery seed in rows eight or ten inches apart; roll, or pat with the back of a spade, to bring the soil in close contact with the seeds. ....Cucumbers, melons, etc., the seeds of which were sown on sods, or in pots, may go out. They will grow all the better if covered nights and cold days with frames, made by tacking cotton cloth over bottomless boxes. Sow seeds in the open ground. ....Seeds of "sweet herbs," such as thyme, sage, etc., should be sown in beds in the open ground, for plants to be transplanted later..... Early kinds of sweet corn should be planted as soon as the weather will allow, and followed by weekly plantings.... Egg-plants make little headway unless the weather is warm. If set out too early, they get stunted. The end of the month is quite soon enough; give them a warm, rich spot. ....Success with onions depends largely upon early weeding. The cultivator may be used between the rows, and the hoe quite close to them, but there is no substitute for the thumb and finger for weeding in the rows. Weed twice, and as many times more as necessary....Keep the early potatoes well cultivated, and on first appearance of "the bug," apply Paris green....The tall-growing peas must have brush or other support; give this early, before the vines are large enough to fall over. The dwarfs, such as American Wonder, are useful to occupy places from which crops have been cleared.

Bee Notes for May.

STUDY YOUR LOCALITY.—Each bee-keeper should be thoroughly conversant with the honey resources of his locality. It should be known when each honey harvest is to be expected, the length of time it will probably continue, and the quantity and quality of honey that will be stored. Without such knowledge, the bee-keeper is more at sea than would be a farmer who did not know at what part of the season each crop would ripen. Not only should a record be kept, but, as the time for a honey harvest approaches, the bloom from which it is expected should be closely watched, and when it is well advanced, a sharp lookout should be kept up for the honey, and everything be in readiness to care for it. Some honey harvests are very bountiful, but of short duration, and a slight delay often results in considerable loss.

HAVE BEES AT THE RIGHT TIME.—To have hives overflowing with bees at the commencement of the main honey harvest is one great secret of success; but a hive full of bees in April is of no more use than a field full of men to hoe corn before the corn is up. If the hive is not full of bees until after the honey harvest, it is like getting hands to hoe corn after it is ripe. Before and after the honey harvest, bees are consumers, not producers. From the time the egg is laid, until it is developed into a bee, and the bee is old enough to labor in the fields, is a period of about five weeks. Hence brood-rearing should be going on briskly that length of time before the main honey harvest is expected to begin. If ever stimulative feeding is advisable, it is during the five weeks preceding the main honey harvest, but care must be exercised that no more feed be given than is used, or it will occupy combs that would otherwise be filled with brood. When the honey harvest opens, the hives should be full of bees, and the combs full of brood, then the honey must of necessity be stored in the surplus receptacles. If there is room to store much honey in the brood nest at the commencement of the honey flow, the queen will then be cramped for room in which to lay, and the bees will also be slow in commencing their work in the surplus honey apartment.

HIVING BEES.—Some apiarists practice clipping one wing of each queen. Then when a swarm issues, she cannot follow, but crawls about upon the ground in front of the hive. The bee-keeper catches, cages, and lays her aside in the shade, moves the old hive to a new location, and by the time the swarm has decided to return, because it has no queen, he has a new hive similar in appearance to the old one, upon the old stand, and the bees, taking it for their old home, enter it, and while they are going in, the queen is allowed to run in with them. Thus the bees hive themselves without being allowed to even cluster. An objection to this method is, that queens are sometimes lost in the grass. When a swarm returns, it sometimes enters the wrong hive, and if it makes no mistake in this direction, it occasionally clusters all over the outside of the hive, and remains there a long time before entering. If the queen is allowed to enter the hive too soon, she may come out again, thinking, perhaps, that she has not "swarmed," and the bees follow her. There are some indications that clipped queens are regarded by the bees with dissatisfaction, and are thus more liable to be superseded. A queen that is lost can often be found by looking for the little knot of bees that usually accompanies her. If a swarm attempts to enter the wrong hive, a sheet can be thrown over the hive. If a queen is not given to a swarm until the bees begin to show signs of uneasiness, she is not apt to leave the hive. When the queen is unclipped, a swarm will usually soon cluster upon the branch of some tree. As the cluster begins to form, it should be noticed whether it is in a favorable location for removal. If it is where several branches cross, some of them should be cut away with the knife or pruning shears, leaving but one branch for the bees to cluster upon. If the bees are slow in clustering, and more swarms are momentarily expected, their movements can be hastened by sprinkling them with water, using a fountain pump. The hive should be in readiness upon the stand that it is to occupy, when, if the branch is one that can be spared, it can be cut off with a knife, pruning shears, or a fine-tooth saw, and the swarm carried and shaken down in front of the hive. Before shaking the whole cluster in front of the hive, it is better, if possible, to cut off some small twig covered with bees, and shake these down at the entrance; they will at once set up a joyful humming, indicating that they have found a home, and when the rest of the swarm is shaken down, the bees at once start for the entrance in obedience to the call of their companions. If this precaution is neglected, a large part of the bees will sometimes take wing again before the entrance to the hive is discovered, and return to the tree where they clustered, the queen, perhaps, accompanying them. If there is no twig that can be cut off, a quart of bees can be dipped off with a dipper, and poured down at the entrance. When the bees form themselves into a long cluster, lengthwise of a large branch, the best receptacle into which to shake them is, a long clothes-basket lined with cloth, and furnished with a burlap cover, sewed fast at one side. When the bees have been shaken into the basket the cover is thrown over them, they are carried to the hive, and one end of the basket struck upon the ground, which shakes the bees all into a heap at one end of the basket; the cover is now thrown back, and the bees shaken out in front of the hive. If several swarms come out at the same time and cluster together, an equal quantity of bees may be given to each of several hives; if queens are found, they can be caught, caged, and when the bees of any hive begin to show signs of uneasiness, a queen can be given them. Trouble of this kind is avoided with queens that have their wings clipped.

A New Bee Plant.

It would perhaps be more accurate to say, a new use for an old plant, as a correspondent of "The Garden" (London, Eng.), recommends the well-known and popular Siebold's Stone-crop (*Sedum Sieboldii*), as a plant to be grown for bee pasture. We do not remember having seen any of the Sedums mentioned by our apiarists as of value in furnishing either pollen or honey. This Japanese Stone-crop is perfectly hardy, at least near New York, and is one of the most ornamental of the large genus to which it belongs. Its numerous stems, sometimes a foot long, are trailing, or almost prostrate. On this account it is often grown in hanging baskets, and in pots and pans; it is more frequently seen as a house plant than a hardy one. It has several excellent qualities for a bee plant, being easily propagated, and thriving in poor soil; it is also a capital rock plant, and endures the longest drouths without apparent injury. Its clusters of purplish pink flowers are produced at the end of each stem in the autumn months, and last a long time. Its late blooming particularly commends it for apiarian use, as it comes at a season when honey-yielding flowers are scarce. The plant is kept by florists generally, and may be propagated by breaking up the plant and setting out the stems singly, or the stems may be cut into pieces two inches or less long, and rooted in the usual manner.

FARMERS' CLUBS.—Farmers' clubs are a great want in the rural districts. We have State and County Agricultural Societies, with annual fairs, which are good so far as they go, but their meetings for discussion are generally but once a year, and these during fair week, when the attention is very much absorbed with Fair matters. We have agricultural papers enough, but their circulation in many of the farming towns is very limited. What is wanted is a farmers' club, in every town or business center, where farmers come to market, or to get their supplies, that they may have opportunity for a conference, for an hour or two, on some topic previously announced, and occasional exhibitions of fruits and vegetables, during the summer and fall. In this way, the best farmers, with their reading, experiments and methods, would be brought in close contact with those who are in the back-ground, and the business of farming be made far more attractive and profitable. Our census statistics for the last thirty years show a steady drift of our population toward the cities and villages. These gain at the expense of the agricultural towns. The school house and church in many of them are half emptied. There is no remedy for this decadence but in the gospel of husbandry, taught and illustrated by the farmers themselves, who should exalt their own calling.

How to Get Early Garden Crops.

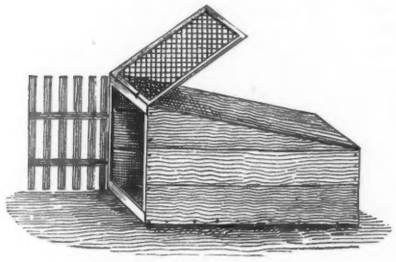
There are many ways of getting early crops, or of trying to get them, such as starting the plants in the house or hot-bed, and covering them with glass, etc., after they are set out. But when these methods are not adopted, there is still a chance to have early vegetables and a good garden. It is simply to select the warmest and driest soil, and sow or plant early. It is not desirable or wise to sow or plant the main crops before the soil is in good working condition. But for a few early crops on a small scale, we can well afford to run a little risk of losing our seed by too early sowing. One thing however should not be overlooked. Do not depend on this early sowing, but sow or plant again a little later, when the soil and weather are more favorable. If the first sowing succeeds, you are so much ahead; if it fails, you have lost only the seed and your labor. You can well afford to run this risk. There are some crops which can be sown the moment the frost is out of the soil, with little or no risk. Among these we may mention peas, cabbage, cauliflower, spinach, onion, lettuce, celery, beet, carrot, parsnip, etc. It is seldom that these crops are hurt by early frost. Last year a frost in May destroyed many cabbage plants, but this is a very unusual occurrence. Among the crops which we should re-sow without waiting to see if the first sowing will escape, are beets, radishes, cabbage, cauliflower, beans and sweet corn.

Sitting Hens and Early Chickens.

When the hens become broody, they may, with care, be moved after dark, to secluded nests provided for them, where they will be away from the sound of other fowls and be in partial darkness. Make the nest of fine hay, cut straw, pine needles, or any soft material, a little soil being placed in the bottom to keep the shape; many scatter on flowers of sulphur to keep off lice. Set but few eggs, nine or ten at the most, until the weather is warmer, then the usual number of thirteen will be quite safe from injury by chilling. Be careful to select large, well-formed eggs, and tap them together lightly, to make sure of the soundness of the shells. Do not now leave all the responsibility with the hen, but look after her each day. See that she leaves the nest regularly, for food and drink, and at the same time, if the eggs are not clean, wash them with lukewarm water. If the eggs are fresh when they are set under the hen, twenty-one days should finish incubation. Do not disturb the hen during the last twenty-four hours of incubation, except to take out the shells from the chicks that have already been hatched.

When the chickens are twenty-four hours old, take hen and chickens from the nest, and place them in a coop already prepared for them with dry sawdust or some fine litter on the bottom. Feed the hen well with all she will eat of corn or dough before giving the chickens their first meal of crumbs and boiled eggs, otherwise the hen, who will be very hungry, will leave but little for the chickens. Keep the hen as quiet as possible for a day or two, until the chickens get a little stronger.

Later, give nourishing food and feed quite often. While others are praising their favorite breeds of of fowls, I cannot let the old reliable Light Brahmas pass unnoticed. I believe there is no other fowl so well fitted to fill the place of "the farmer's fowl" as these. They are profitable, both in the matter of dressed poultry and in their product of eggs. They are handsome in form and marking, easily kept in confinement, and when allowed to roam do not dig up the garden like the smaller



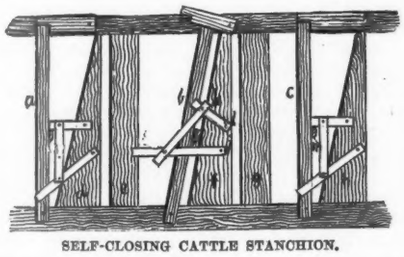
IMPROVED CHICKEN COOP.

breeds. They almost never acquire the bad habits of the more active breeds, such, for instance, as feather-pulling or egg-eating, habits which come to uneasy, nervous fowls in search of something to keep them busy. The cockerels are large and dress well quite early, and when the pullets are a year old, make the best of sitters and mothers. When bred low with short legs, they are not clumsy, and a full-grown fowl will require no more food than those of smaller breeds. Having made some slight improvements in chicken coops, which may interest others, I enclose sketch which will show for itself. The coop is to have an extra drop-door of wire netting, to be turned back in the daytime and to be dropped in front at night, to protect the hen and chickens from skunks and other night prowlers. The drop-door of netting should be so hung as to lie flat upon the roof of the coop.

H. C. B.

A Self-Closing Cattle Stanchion.

The sketches of a self-closing cattle stanchion, which is simple, cheap and durable, with directions for making it, are sent us by F. H. McFarland, Lamoille Co., Vt. In the engraving, one of the stanchions is shown open, and the other two closed. The pieces *d*, *e*, *f*, *g*, and *h*, are immovable, *a*, *b*, *c*, being the movable stanchions. The device consists of three strips, two inches wide, and three-quarter inch thick, fastened to one upright piece by means of two bolts, *d* and *b*; the length of the strips is regulated by the distance between the stanchions. Bolts are also used at *a* and *c*, the bolt at *c* passing through a small block, two inches thick, which assists in moving the upright piece. A similar block, *e*, is also placed on the movable stanchion, upon which the block at *c* rests when the stanchion is closed. The fastening *f*, and the piece *c*, are so



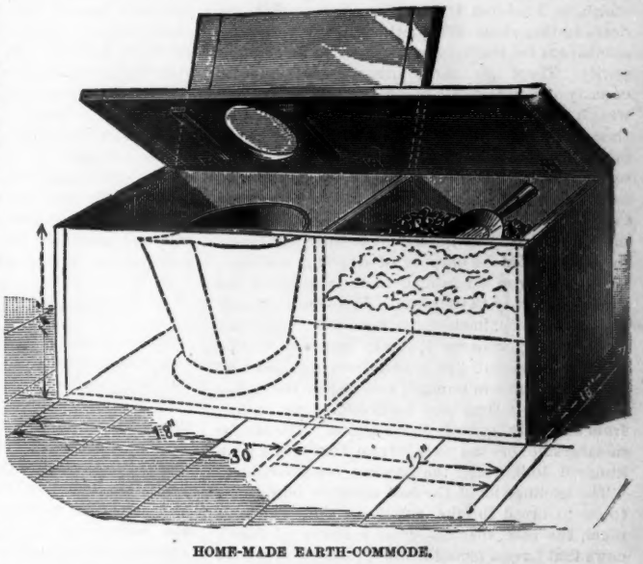
SELF-CLOSING CATTLE STANCHION.

arranged as to fall in place at the same time. It will be seen that the animal not only fastens herself in place, but she is doubly secured by the pieces *f* and *c*. (The block at *e* may be omitted if desired, and the device be used with the fastening *f*, only). A badly hooked cow is often the result of careless hired men, and such carelessness is obviated by the use of the above arrangement. A cow takes her place in the open stanchion, and in trying to get at the feed below, presses against the piece *a*, brings *c* to place, and closes the stanchion.

Are You Ready for Cholera?

Cholera last year ravaged portions of the Old World. Judging from former visitations of the epidemic, it is probable that it will appear in this country during the coming summer. Large cities are already improving their sanitary condition, and Congress has established a National Board of Health to aid the States in repelling an invasion of the cholera from abroad. Not only should ports of entry and crowded populations be in a defensive condition, but small communities ought also to protect themselves. Indeed, this is a matter that interests every householder in the land. The question, "Are you ready for the cholera?" appeals to "you," on the farm, as well as to "you," in the paved and sewered streets of the city. While we do not know all about the cholera, one fact is definitely fixed: It is encouraged by decomposing animal and vegetable matter—everything comprised in the inelegant but expressive term—filth. The first step, in city or country, is to look to the house and its surroundings, and place them in complete order. It is the wastes of our daily lives that constitute the source of danger. Outside of well ordered cities, there is rarely complete provision for disposing of the wastes of the family. On the farm, the arrangements for getting rid of these wastes, not merely covering them out of sight, but depositing them where they can do no harm, are usually most inadequate. It is not rare to see an expensive house, with an open sink-drain leading from the kitchen at the rear, a constant menace of typhoid and other diseases, and offering an open welcome to cholera. The house itself may have its damp cellars and unhealthy rooms. Air, sunshine, and the whitewash brush, will soon cure these. The surroundings of the house are of more importance, as the family wastes are removed from the house with usually little care as to what becomes of them afterwards. The family wastes are of three sorts. First, garbage—the kitchen solid refuse, including ashes. Second, liquid waste—kitchen slops, washing water, etc. Third, the wastes of the human body. Leaving the other wastes to another time, we call attention to the wastes of our bodies as the most dangerous of all, and at the same time the most readily disposed of. Nothing can be more inadequate for the purpose than the ordinary privy vault. It is not only a constant offence, but a continuous source of danger, its contents often contaminating wells at the distance of a hundred feet or more, and bringing disease and death into the family. Dangerous at all times, the privy vault is especially to be dreaded in time of cholera. There is but one thing to be done with a privy vault—abolish it! Do this at once, before hot weather. It is impossible to mend, improve, or make it tolerable. Fill it up and be done with it. The substitute for the vault is the earth closet. If the small house that has stood over the vault is more convenient than any other place for the earth closet, use it. Such buildings are usually eye-sores, and the filling up of the vault removes all excuse for the unsightly presence. An earth closet may be placed in any convenient room; one may be partitioned off in a shed, in a barn, or other out-building, or the closet may occupy a small room in the house without unpleasant results. The material required is dry loam, not sand, but good soil, the stiffer the better. Dry this earth thoroughly, by spreading it on a platform of boards in the sun. When dust dry, pass it through a sieve to remove lumps, stones, etc., and store in barrels or boxes in a dry place. Where coal is burned, sifted ashes will answer in place of dry earth, but wood ashes must not be used. For the closet, self-acting ones, in which the weight of the person liberates the dry earth from a hopper, may be purchased if preferred, but a simple and inexpensive closet may be made at small cost, that will answer as well as the most costly affair.

The following engraving and description of a home-made earth closet, are sent us by Mr. Charles F. Wingate, Sanitary Engineer, New York City. This simple form of earth closet can be constructed at slight cost by any householder. The body is a plain pine box. Its sides are not over fourteen inches high; its depth is eighteen inches, measuring from front to back, and its length is about thirty inches. It is divided into two compartments, one eighteen by eighteen inches, and the other eighteen by twelve inches. The larger of these compartments has no bottom; the smaller has a tight bottom. On top there are two covers. The lower cover, hinged to the upper edge of the back, extends across both compartments. In this is cut the seat, of the usual pattern, over the center of the larger compartment. The upper cover is hinged to the lower one, and may be raised independently. It is made the size of the larger compartment only; both covers have a little overhang, to facilitate lifting them. Such a box, if made by a carpenter, will cost anywhere from two to three dollars, according to the amount of finish put on it. The receiving vessel is a galvanized iron coal hod, as large as will stand in the larger compartment with the covers down. The smaller compartment is filled with dry earth, coal ashes, peat dust, or whatever else is used as a deodorizer, and a little hand shovel or scoop is laid in. The closet is then ready. Once in use, it will never be given up.



HOME-MADE EARTH-COMMODE.

TIP ENDS OF EARS OF SEED CORN.—The Director of the New York Experiment Station seems to have settled the question of the comparative value of seed corn, selected from different parts of the ear. Some farmers discard the seed from the tip ends, others that from the buts, because the rows sometimes grow crooked. In the experiment, seed from the tip end of the ear was planted at one end of the rows of corn, seed from the but at the other end, and seed from the center of the ear in the middle of the rows of corn. The tip kernels yielded the most good corn. The but kernels yielded more good corn than the central kernels, and the merchantable ears were distinctly heavier, yet the but kernels furnished more unmerchantable corn than did the central kernels, and the central kernels more than the tip kernels. From experiments continued a second year, the conclusion was reached that "seed corn was equally good from either portion of the ear, certainly that the tip

kernels are fully equal to other kernels for planting." The experimenter who insisted upon the planting of all the kernels of the best ears selected from the field, as essential to the perpetuation of any variety in its purity, may be about right. He believes it, and shows his faith by his works.

The Jersey Cattle Boom

The American Jersey Cattle Club was organized in 1868, and their register was opened for the use of the members of the club and other breeders of Jersey cattle. The first volume of their register, published in 1871, shows five hundred and thirty-nine bulls, and one thousand four hundred and twenty-seven cows and heifers. The second volume, published the year following, shows nine hundred and seventeen bulls and two thousand four hundred and forty-seven cows and heifers. This does not show the whole number of Jerseys in the country at that date, for there had been importation of stock from the Channel Islands by a few enthusiastic breeders, many years before that. The number in the register at the present time is not far from twenty five thousand cows and heifers, of which at least ten thousand are supposed to be dead, leaving about fifteen thousand as the available means for multiplying the stock in its greatest purity. There are many other Jerseys in the country of good private record, owned by men of wealth, who do not care for pedigree, and prize them mainly as family cows. There are many others of pure blood and good record as butter makers, whose pedigree cannot be traced to registered animals of the club, either in this country or in the Island of Jersey. A faultless pedigree is so much prized that no intelligent breeder will invest in the stock for the purpose of breeding and sale, unless they can be entered in the register of the American Jersey Cattle Club. Practically, we are shut up to the animals registered by this club, and to those importations that are qualified for its register. The club has grown from a handful of men, forty-three in number, residing in the Atlantic States, to a large and influential body, hailing from almost every State in the Union. The fee for membership has advanced from ten dollars to a hundred dollars, and the finances are flourishing.

The leading aim of the best breeders now seems to be to breed for the butter record. This is so much the case, that the great majority of Jersey cows that have a record below fourteen pounds of butter a week, are comparatively cheap, while those with a record of fourteen pounds a week, upwards to twenty-five and thirty pounds a week, are comparatively high. Those at the top of the scale are sought for and bring fabulous prices, or what would be called such a few years ago. Great emphasis is put upon their butter record, and the condition of the tests, as to rations and previous feed of cow, continually grow more precise and satisfactory. The aim is, to show the value of a given animal on a specified value of rations, as a machine for making butter, or what the cow will do on grass alone, in flush feed. These tests are made under the supervision of the club, or under the direction of such witnesses as secure impartiality and give entire confidence in their correctness. These butter records of the Jerseys are quite remarkable, compared with the average yield of common cows. They are remarkable especially, as showing the prepotency of bulls. The record of the butter yield of the descendants of Albert 44 shows:

20 cows	making	14 lbs.	of	butter	and a	fraction	in	7	days
8 "	"	16 "	"	"	"	"	"	"	"
4 "	"	17 "	"	"	"	"	"	"	"
5 "	"	18 "	"	"	"	"	"	"	"
2 "	"	21 "	"	"	"	"	"	"	"
1 "	"	21 "	"	"	"	"	"	"	"
1 "	"	25 "	"	"	"	"	"	"	"

There are numerous other records quite as good or better than this. Mary Ann of St. Lambert, shows eight hundred and twenty-eight pounds in three hundred and three and a half days, thirty-six pounds in seven days. The Rioter Alphea family shows a butter yield of seven hundred and seventy-eight pounds in eleven months and six days, and of twenty-two pounds in seven days for Eurotas. In the descendants of Imp. Rajah, 340, we find Donan, 1485, with a record of twenty-two pounds in seven days. Animals with such records do not quite bring their weight in gold or silver, but they are very expensive. A firm of enterprising farmers in Pennsylvania, with abundant capital, have started to raise Jerseys of this type, and are confident of success. For their best two bulls the service fee is one thousand dollars. Their best bull is out of Eurotas, with the record of seven hundred and seventy-eight pounds of butter and one calf in one year, and the price paid for him was twelve thousand five hundred dollars, when he was six weeks old, a price quite unknown in Jersey.

The rearing of the best type of Jersey cattle is not to be looked upon simply as a speculation, or as an amusement of men of large wealth, but as an honest endeavor to improve the dairy cows of the whole country, and to increase the yield of butter. The census of 1880 shows fifteen million cows in the United States, with a yield of one thousand three hundred million pounds of butter, and four hundred and fifty million pounds of cheese. The butter at twenty cents a pound was worth two hundred and sixty million dollars, and the cheese at eight cents a pound, thirty-six million dollars. The value of the butter is as seven to one, showing this to be the main thing in the dairy industry. It is far within bounds to say that the displacement of the present race of scrub cows by the Jerseys and their grades, will double the yield of butter and improve its quality. Statistics show that the average yield of the common cow is less than one hundred and fifty pounds of butter, while that of the registered high-class Jersey cattle is over three hundred pounds a year. The breeding of this stock cannot fail to be a safe and profitable investment while grass grows and there is a demand for "gilt-edged" butter.

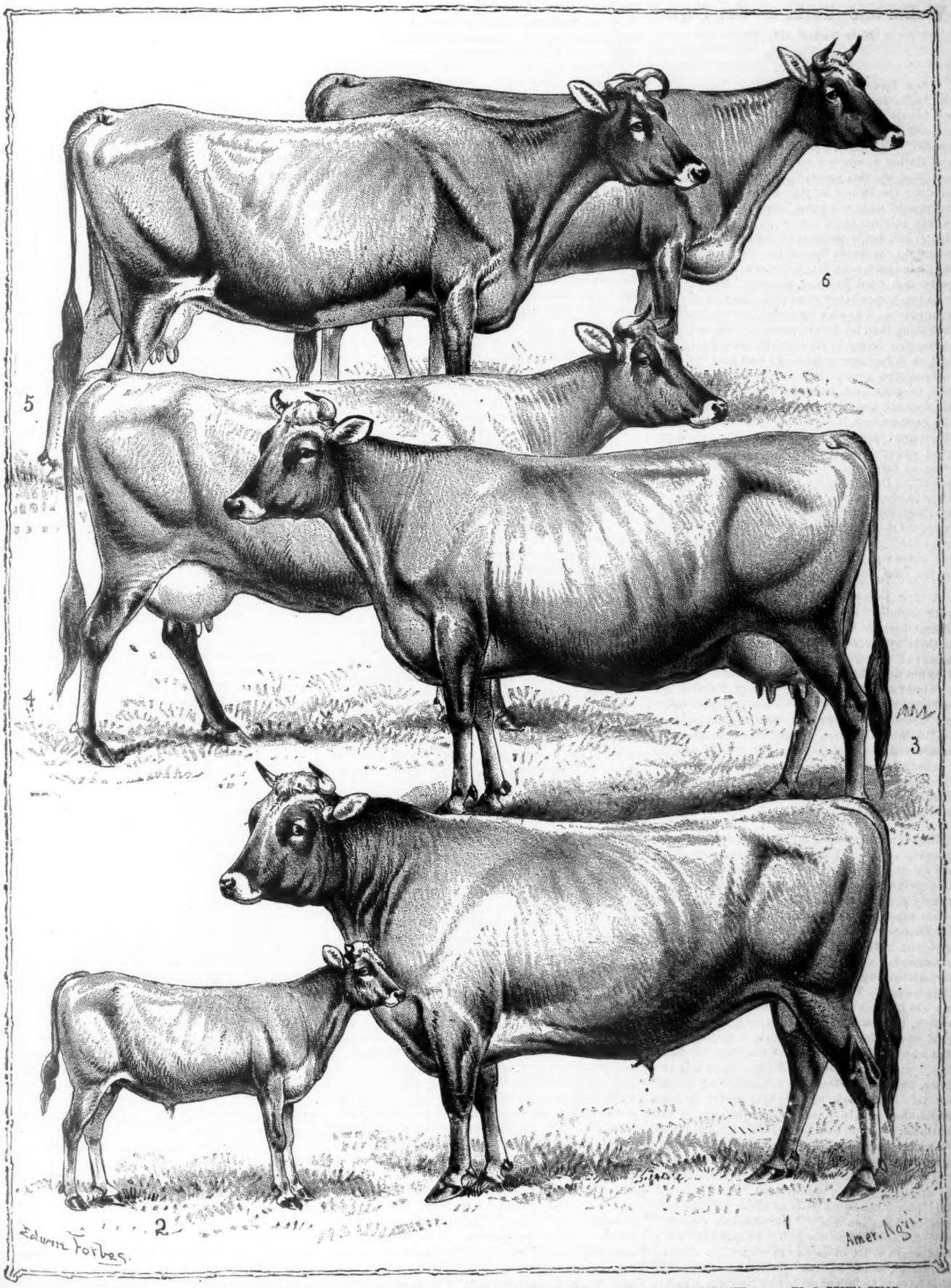
Staten Island "Jerseys."

Staten Island, comprising one of the sixty counties of New York State (Richmond), lies down the bay, six miles from this city. It is about twenty miles long, five miles wide, and with its picturesque, diversified surface, presents a scene of surpassing loveliness and beauty. Ex-Governor Hoffman remarked to the writer that after travelling for three years over the world, he saw no place so picturesque and attractive as this "Gem of the Sea," lying in the Narrows of New York harbor. While the country seats of many wealthy Metropolitans dot the shore, a large share of the island is still occupied by the farms of the descendents of the original settlers, and the census returns show that the farm crops of this county contribute largely to make up the great aggregate of the agricultural productions of the State. Among other agricultural features, Staten Island is noted as the home of one of the most important herds of Jersey cattle in the country, that of Mr. A. K. Johnston, at Prince's Bay. The herd comprises forty-five animals, each one being recorded in the Register of the American Jersey Cattle Club. Our artist, Edwin Forbes, presents on the following page, portraits of some of the prominent members of the herd. Among the noted strains comprised in the herd are the "Signals," represented in the engraving by "Aralon." The celebrated "Stoke Pogis" family is conspicuous in "Ric Rac," a beautiful son of "Stoke Pogis 5th." His portrait is prominent in the engraving. "Regina Belle" worthily represents the "Regina" blood. This animal was purchased as the most thoroughly in-bred "Regina-Touqueville Queen" heifer in the country. She was selected to stand for her portrait. "Island Pet 2d," is a daughter of "Farmer's Glory," and an amimal of rare beauty, as her picture shows. "Fair Starlight," the remaining cow in the engraving, made upon a test trial, seventeen pounds, seven and a half ounces of butter in seven days, as recorded in Maj. Campbell Brown's "Book of Butter Tests." The butter-making ability of other cows in the herd will be tested when opportunity offers. The remarkable butter-making quality of Jersey milk is well known, though its quantity is not large, even at the flush. This richness of the milk the Jerseys impress upon their grades, and a Jersey grade usually has a larger flow than a pure-bred with the latter's rich quality of milk. Hence the grade cows are of great value for the dairy. Mr. Johnston's farm is not conducted primarily for its dairy products, but is designed for the breeding of thoroughbred stock—a necessity if we would produce high-class grades. As a maker of butter only, the grade Jersey calf is valuable, and may bear a value of two or three times that of "native" dairy stock. The thoroughbred calf, on the other hand, has a larger value as a breeder, and a heifer calf rarely sells for less than one hundred dollars when weaned. A calf of some of the noted butter making families, will readily bring several thousand dollars.

Sea-Weed as a Manure.

In the shore towns and in the districts penetrated by tide-water streams and coves, sea-weeds of various kinds are much used for fertilizing the land. There is great difference in the character and value of this marine vegetation, the most valuable coming from rocky shores and deep waters, and the less valuable from the flats and bays, where fresh water mingles with the tides. The Eel-grass (*Zostera marina*), which is not a true alga, or sea-wrack, grows abundantly both in shoal, brackish water and in the sea, but is the least valuable of sea-weeds. The Rock-weed (*Fucus vesiculosus*) takes its common name from its strong attachment to rocks and boulders that are found on many parts of the coast. The Ribbon-weed (*Laminaria*), also called Kelp, and the "mosses," so beautifully colored, grow in much deeper water, and are considered the best of all for dressing the land. These weeds are torn up from the bottom by the storms in winter and spring, and borne by the tides and winds in immense quantities to the shores, where they are stranded within reach of the farmer's teams. The stay of sea-weed upon the shore depends both upon the form of the beach and the presence of rocks to prevent its return to the sea when the tide recedes. On some beaches it has to be gathered at every receding tide, and piled in heaps beyond the reach of the water. In sheltered coves hundreds of loads are often gathered after a single storm. It sometimes remains for many weeks.

The value set upon this fertilizer differs very much in the localities where it is within easy reach. In some places the beaches are leased, and the wrack is carefully gathered and removed seasonably to the yards, or to the fields where it is to be plowed in. In other districts all that lodges below high-water mark is free to the first comer, and is removed in boats and scows. It just pays for gathering. Large quantities of it are taken from the shores of islands, and sold in the neighboring parts, at from one to two dollars a ton. The analysis of the ash of these weeds shows a large per cent of potash, and it is found to be a very valuable fertilizer for the potato and the turnip, and other root crops. In the villages, where the weed is landed and offered for sale, there is an increasing demand for it for use in village gardens, as well as upon the farms lying back in the country six or seven miles. Mixed with the mud taken from shallow coves, when it is gathered with rakes in scows, it makes a good absorbent for the cow yard and pig sty. It is sometimes used as a top-dressing for grass land, but this must be attended with considerable loss of ammonia, as it decays rapidly. The most economical use of it is, to spread it broadcast upon land that is to be immediately plowed for corn and potatoes, or other main crops. It is a favorite fertilizer for the rutabaga and sweet German turnip crops. A drill is opened with the plow, the furrow is filled with the weed, and then covered by turning two furrows over it. The mangold and sugar beet may be profitably raised in the same way. This covering the fresh gathered weed with a few inches of earth leaves nothing to waste. We have found it to be an excellent fertilizer for asparagus, spreading it upon the surface of the bed and forking it in. We have used it for forty years, and with the addition of superphosphate or bone-dust for top-dressing, desire no better general fertilizer. CONNECTICUT.



NO. 1. BULL RIC RAC. NO. 2. ST. HELIER ST. NO. 3. ARALON. NO. 4. ISLAND PET 2ND. NO. 5. FAIR STARLIGHT. NO. 6. REGINA BELLE.

STATEN ISLAND JERSEYS.

Drawn and Engraved for the American Agriculturist.

Walks and Talks on the Farm.

New Series.—No. 11.

JOSEPH HARRIS.

"Few farmers," said the Doctor, "appreciate the real value of a piece of rich grass land. It is not merely that such land will produce double the amount of grass, but you get the grass when most needed. You get a good bite early in the spring, and during a severe drouth, when other pastures are dried up, this piece of land will be green and produce the richest of rich grass."—"I think I understand what you mean," said the Deacon. "It is like putting three horses to a plow; on the lighter and sandy portions of the field, two horses would do the work, but on the heavier portions, they have hard work to get through, and it is these parts that need the best plowing. But plowing with two horses is not so serious a mistake as using poor points. I know a man who spends more time in writing than he does in plowing. He says 'go,' rather than 'come.' He starts his man at plowing, and as it happens to be sandy land near the gate, and the plow goes in deep and turns up a nice furrow, he goes back home thinking it is all right. He does not know that as soon as the plow strikes the hard ground, it skims along the surface two, three, or at most four inches deep. The points are good enough for the sandy knolls, but too much worn to take hold of the clay." "Of course," added the Deacon, with a quiet smile, "you do not know to whom I refer. I merely mention the fact as an illustration of what I take to be your meaning in regard to the rich piece of grass land. Ordinary grass land produces a fair crop in a good season, but not when grass is most needed. It will grow on the sand, but not on the clay."

A New Jersey farmer writes: "I want to ask your opinion concerning prices of grain, etc. Wheat here in Belvidere brings ninety cents per bushel; rye, sixty-five cents, and corn forty-five cents to forty-eight cents. Shall I sell or hold on? I do not need the money." Lucky man! If I had plenty of money and a good granary, I would not sell a bushel of good wheat for less than one dollar per bushel.—"And you are such a sanguine mortal," said the Deacon, "that I do not believe you would sell for that."—"At any rate," said I, "when a staple article of universal consumption like wheat is below the cost of production, I should be in no hurry to sell unless it was inconvenient to hold it."

Here is a letter asking for some suggestion about growing seeds. "You ought to write a book on the subject," said the Doctor. "It is a shame for this great country to import so many seeds and pay twenty per cent duty on them, besides freight and other expenses."—"If you raise anything," said the Deacon, "and take it to a seedsman, he will give you nothing for it. I grew a lot of Hubbard squashes last year. I could not sell the squashes, and was advised to get out the seed. I did so, but what a time we had! It was a cold, dirty job. And when we got through I tried to sell the seed. The year before, I was told the seed was very scarce, and I paid one dollar and fifty cents per pound for it. But when I offered it for sale, I was told that there was a great crop and they did not need it at any price, but finally offered me forty cents per pound for it! If there is any one who wishes to raise seeds, they can have an entire monopoly of the business, so far as I am concerned. I would rather raise corn and potatoes and beans and even wheat, than bother with such work. And so with cucumber seed. I was told great stories about the profits of growing good cucumber seed. But I was not told how much work it is to clean it. No more seed-growing for me."—"Nevertheless, Deacon," said I, "there is money in it. I could give you a hint worth a lot of money in regard to cleaning cucumber, melon, squash, tomato and other seeds that have to be fermented before they will separate from the pulp. Put a little brewer's yeast in the barrel. You will be astonished at the saving of time and labor. The seeds drop to the bottom of the barrel and will be white, clean and entirely free from mucilage. After you get started, you can get yeast of your own from the fermenting barrel. This is a secret that you will not find in the books."

"No man can hope to be a large and successful seed-grower all at once. With the exception of peas and beans, it is necessary to keep different varieties separate. And it is better, as a rule, for a seed-grower to make a specialty of a few kinds. Beets, carrots, cabbages, onions, parsnips, celery, turnips and salsify, must be grown one year and set out the next year for seed. With the exception of onions, it is not necessary to sow the seed as early as would be desirable if your object was to grow the crop for ordinary purposes. Large, full-grown roots or large heads of cabbage are not necessary. Mangels or beets, to grow bulbs for seed, can be sown as late as the first week in July. My own plan is, to sow in rows twenty-eight inches apart and cultivate between the rows with a horse-hoe. The plants in the rows can be left much thicker than when the crop is grown for stock. But you want rich land and the crop must be kept clean. Harvest the crop before the crowns are hurt by frost. The secret of keeping the roots safe through the winter is, to mix plenty of soil with them in the pit. We set out the beets or mangels in rows three and a half feet apart and six to twelve inches apart in the rows. Cover with mellow soil, so that the crown is about an inch below the surface. 'Yield per acre?' That varies greatly. Last year, on a piece of rich land, I had one hundred and six bushels of seed on an acre and a quarter, or about eighteen hundred pounds per acre. 'Profits?' Figure for yourself. On paper they are liberal. In practice, I have not got rich at the business and never expect to. That is the fault of the man and not of the business. Garden beans are sometimes a profitable crop. They have this advantage over most other seed crops—they do not readily mix and you can grow several varieties in the same field. For some years, common white beans were worth as much per bushel as the seedsmen would pay for garden varieties, and the result was, that many growers gave up raising the garden varieties, and this spring all the varieties of wax or butter beans were quite scarce, and the growers could readily get three dollars or four dollars per bushel for them. The cultivation is precisely the same as for ordinary field beans. Sweet corn for seed must be grown with care. Only one variety can be grown in the same field. The late varieties are difficult to cure. They must be planted early, on good land, and the crop well cultivated. The early varieties do not yield so well, but are much more easily ripened and preserved in good condition. Potatoes are a good crop for a young farmer, ambitious to be a seed-grower, to commence with. We know a farmer who finds the business of raising new varieties decidedly profitable. He sells to his neighbors, rather than to the seedsmen. A young seed-grower will be somewhat astonished at the price a seedsman asks and is willing to pay! But let him not be discouraged on this account. He will sooner or later get a chance at the seedsman, and pay him back in his own coin."

"The best time to sow plaster on clover," said the Deacon, "is either early in the spring or during dry weather in May. In the latter case, the plaster sticks to the leaves, more or less, and seems to revive them."—"Yes," said the Doctor, "I have often noticed how much good plaster does on clover during our usual early summer drouth. One bushel to the acre is sufficient, but two or three bushels, where it is cheap, can be sown to advantage."—"Since we have got in the habit of using superphosphate for corn," said the Deacon, "the old practice of sowing plaster on corn, when it is just out of the ground, is becoming less and less common. But I have seen wonderfully beneficial effects from its application."—"Such methods," said the Doctor, "must go. The application costs more than the plaster. I like to see our good German neighbor plant his field of corn with a wheat drill and fertilizer attachment. He breaks up a piece of sod land, harrows it and rolls it, and harrows it again, sometimes the way of the furrows and then at an angle of about forty-five degrees. He has all the modern harrows, including the spring tooth, the Acme, and the revolving disc harrow, and what is better, he uses good horses with them, and seems to know by instinct when is the best time to use them. He is always ahead of his work. When the ground is ready and the weather suitable, he starts the drill, and by night a field of a dozen acres is all in and done. Last year I noticed that while two of the boys drilled in the corn, the father and daughter planted potatoes on the headlands. Each tool, implement, plow, drill, hoe, pail, bag and basket was taken home and put in its proper place. The gate of that field was closed. The work was done."—"Not quite," said I, "for I distinctly recollect that the next day one of the boys got a quantity of white twine and strung it on poles on the lower parts of the field, where the crows were most likely to pull up the corn. Still what you say is true. When the work was done it was done, and well done, and the whole energy of the farm was directed to the next job."

"What do you think of the plan of mulching potatoes," asked the Doctor, "to check evaporation and keep the soil moist during our dry, hot weather?"—"It is a good thing," said I, "if put on two or three inches thick between the rows, so as not only to keep the soil underneath moist, but to kill the weeds; and there is no better material than fine earth."—"What nonsense," said the Deacon. "How are you going to get such a mass of earth for a mulch? Three inches of such earth spread three inches thick over an acre, would weigh five hundred tons. No doubt such a covering, evenly spread, would keep the soil quite moist, but how are you going to get it?"—"A good horse-hoe," said I, "run through the rows once a week, until the soil is fine and mellow, three inches deep, will furnish this splendid mulch at a comparatively small cost. And this same mulch is equally good for cotton, tobacco, corn, beans, cabbages, beets and turnips."

"I saw a man the other day," said the Squire, "who wanted to buy onion sets. He offered me two dollars and twenty-five cents a bushel for them. He says there is no trouble in raising them; all you have to do is to sow the seed very thick on the poorest land you have, so that they will not grow too large. The smaller the sets, the better."—"This is the popular notion," I said, "but in my experience, the larger they are the better, provided they do not run up to seed. Those who buy sets, like them small because they go farther, but if you raise your own, it is better to set out good sized ones—say half an inch to an inch in diameter. I think, too, it is a great mistake to suppose that they should be raised on poor land. On the contrary, it is hardly possible to make the land too rich. There is quite a demand for sets, and it is surprising that people do not grow their own. There is no real difficulty. Make the land as rich as you can; sow in rows not less than fifteen inches apart, and drop fifty seeds in each inch of row. Sow as soon as the frost is out of the ground; keep the crop scrupulously clean, and pull the onions in August."—"Do not forget," said Willie, "to put on nitrate of soda and superphosphate. We never had them half so good before we used the nitrate."—"Willie is right in this, but doubtless you can make the land rich enough by using plenty of manure. The richer the land and the more seed you sow the better. I sow mine with a drill, and quite frequently, at the end or commencement of the row some seed is spilled, or when using such a large hole, three or four times the usual quantity is dropped in an inch or two of row. But I do not recollect ever seeing the sets spoiled by being too thick. Of course, in these places, the tops wither, and some of the onions die, and the sets are very small, but many people prefer small sets." "How much seed would you sow to the acre?" asked the Squire. "Fifty seeds to the inch of row, is about as indefinite as you can put it. It is a common fault with all you writers"—"I would sow not less than fifty pounds to the acre," I said, "but I do not know that that is any more definite than fifty seeds to the inch of row."

White Pigs—Large, Middle and Small Breeds.

Notwithstanding the superiority of some of the black breeds of pigs, and in spite of the fact that the color, unlike beauty, is not even "skin-deep," the blackest pigs dressing quite as white as the whitest, there is, in this country, in the Northern States at least, a prejudice against black pigs. In the Southern States, in localities where the pigs run at large, and the Paint-root grows, it is black pigs or none at all. White pigs, if they feed upon Paint-root (*Lachnanthes tinctoria*), become completely blind, and their hoofs drop off, while the black pigs can eat the plant without apparent injury. This singular fact accounts for the prevalence of black pigs in many Southern localities. There are counties in England in which there is a prejudice against white animals, and others in in which only black pigs are tolerated. While in the Western States the prejudice against swine that are black, in whole or in part, is rapidly disappearing, it remains quite strong in many of the older States, where those who keep but few swine, or who raise the "family pig," almost invariably prefer white animals. Notwithstanding that the black pigs present some of the most striking illustrations of skilful breeding, and are the perfection of form, and of swinish beauty, people are prejudiced against them by early associations. Their first knowledge of pigs was gained from white ones, and in their minds, white is the proper color for pigs. The number of so-called breeds of white pigs known in England, was at one time very large; a slight variation, such as we may expect in a strain, was given a distinctive local name, and called a breed. English breeders took a long step in simplifying pig nomenclature when they grouped pigs by their colors and sizes, and gave us large and small black breeds, and large and small breeds of white pigs. In 1852, a well known English breeder exhibited at one of the important fairs, several pigs of extraordinary merit, but too large to be judged among the small white breed, and not large enough for the Large Whites. The animals were so remarkably fine that they could not be disqualified. The judges met the difficulty by making a third class, calling it the Middle White breed. Since then, while only the large and small black breeds have been admitted, the white pigs have three breeds, the Large, Middle and Small White. The white breeds have descended mainly from the old Yorkshire breed, one of the largest

Fig. 1.—SMALL WHITE PIG.

pigs ever known, and one of the coarsest and worst. Its legs were extremely long, with weak loins, and it was very long from head to tail; the color was chiefly white, and its abundant, rather bristly hair, long and curly. The animals yielded a coarse, flabby flesh, of poor quality. The improvement in this breed commenced early in the present century, and resulted in producing the leading white breeds of the present day. In the course of years, several nominal white breeds have been merged into this, and are now no longer known.

The first step in the improvement of the old Yorkshires, was to introduce a cross of the white Leicesters. This breed was nearly related, and equally large, but had a smaller head, erect ears, was lighter boned, and had finer hair than the other, and is now rarely met with. Among other large breeds known in certain districts of England, were the Lancashire, Cheshire, Lincolnshire, Westmoreland, Cumberland and Norfolk, nearly all of which have been absorbed into the Improved Yorkshire, or Large White. The Lancashire is said to have been the nearest to the old Yorkshire in type, and equally large. The Lincolnshire was of enormous size, with large bone and coarse flesh. It was very hairy, had a long snout and huge, flapping ears, and noted for its hardiness, and for being very prolific.

Fig. 2.—MIDDLE WHITE BREED.

The Westmoreland pig was notably ugly, with huge legs, bony flanks, and took on flesh slowly. It was, by various crosses that the pig was obtained which is now no longer called improved Yorkshire, but Large White, by the breeders of England. It is now the most popular breed in England. This breed has been bred to some extent in this country, and its popularity is increasing. It is also esteemed in France and Germany. Individual animals have attained to an enormous size. A boar has been exhibited in England that weighed one thousand two hundred and thirty-two pounds, and a dozen sows were shown together, having an average weight of one thousand one hundred and twenty pounds. A pig at seven months has dressed two hundred and fifty-five pounds, and one at twelve months, at four hundred and eighty-nine pounds.

The Small White breed, or small Yorkshire, was derived from the old Yorkshire in a similar manner to the Large White breed—by various crossings, especially with the Cumberland, hence it is sometimes called the York-Cumberland breed. The breed has a short head, with short, erect ears; its chest is deep, its back broad, and it has short legs, with fine bone. The engraving, figure 1, is a portrait of a Small White pig, and shows the peculiarities of the head. The animal is ready to fatten at any size, and may be converted into roasters, small pork, or small bacon. It is noted for the small proportion of bone to the quantity of flesh, and its flesh is of the finest quality. The ordinary weight is from two hundred and eighty to three hundred and forty pounds, and has been known to reach five hundred and twenty pounds. The Middle White breed, the introduction of which has already been mentioned, is intermediate in all respects between the Large and Small White breeds, and unites the good qualities of the two. It was produced by a cross between the large and small whites, with a dash of Cumberland blood. The Middle Whites are about the same size as the Berkshire, and not so heavily boned. Figures 2 and 3 are portraits from life, by England's great delineator of animals, Harrison Weir, and show the type of head preferred by breeders. They are of the celebrated sow, "Holywell Pride." The short, broad face, with a slightly dished snout, are much admired by breeders. The skin of the animal is marked by a few blue spots, but the hair upon them is white. The Middle Whites have been tested to some extent in this country, and are highly esteemed, especially as family pigs. They are special favorites with the pork packers, who claim that animals of this breed yield larger proportionate net weights than any others grown for their use. The flesh is of the finest quality, and evenly spread over the whole frame. Those who object to black pigs should be able to find an animal suited to their purposes in one of these three white breeds.

Important Points in Cranberry Culture.

At a recent farmers' meeting in Boston, the cranberry cultivators were well represented and gave us the results of their experience for the last few years. The heavy frost of May 31, 1884, destroyed the crops of such cultivators as could not protect them by sudden flowing, and added about one-third to the price of the crop. The Cape Cod men took the lead in the discussion, and the information imparted will be of great value to all cultivators of this crop, and to the amateurs who wish to invest capital in cranberry land. With suitable conditions, this crop can be made just as sure as any grown upon the farm. The difficulties in the way are now pretty well understood, and the cultivator can invest his capital with full confidence of success.

THE CAPITAL REQUIRED depends upon the size of the bog, the community in which it is located, the nearness of sand or gravel, and the thoroughness of the preparation for planting. Where the business is well developed, as on Cape Cod, and improved cranberry land is worth a thousand dollars an acre, peat bogs are very much higher than in districts where the business has not been started. In many places such land is almost worthless and can be had for a song. When the land is purchased, experience shows that it costs from two hundred and fifty dollars to three hundred and fifty dollars per acre to clear the bog of brush, ditch it, cover it with sand or gravel, and plant the vines. There are instances where the cost has run up to eight hundred dollars and a thousand dollars per acre. It is of little use to start in the business of cranberry culture without capital enough to command all the conditions of success.

SUITABLE LAND.—While cranberry vines will grow on upland, and on any poor, wet land, the territory is very limited where the vines will uniformly mature fruit. A peat bog threaded by a brook, and so situated that it can be flowed and

Fig. 3.—MIDDLE WHITE BREED.

drained at pleasure, is the best sort of land for this crop. Sand or gravel in the near vicinity, are also very important items if we study economy in the enterprise. A muck or peat bog with clay soil underneath and clay around the banks would not be a good investment for this crop. Places where cranberries grow naturally about the edges of the water that may flood portions of the bog during the winter, and where swamp huckleberry brush and maples grow upon the dryer portions, are considered favorable. But however well satis-

fied the amateur may be with a proposed location, it will be folly for him to invest his capital before he has invited an expert, who has been for years engaged in the business, to look over the ground thoroughly, and obtained his opinion of the capabilities of the place. Such advice cannot fail to pay, and may save the beginner many thousands of dollars.

CAPACITY FOR FLOWAGE AND DRAINAGE.—These are essential to uniform success. Flowing the bog in winter, say from November to May, and again early in June for two or three days is the best remedy for the insects that prey upon the leaves as well as upon the fruit, and it is also a protection against frost, both in spring and in the fall, before the fruit is mature. In a large bog of ten acres or over, yielding a hundred or more barrels to the acre, worth ten dollars a barrel, a small fortune may be lost in a single night in early September for want of water in store in a pond up the stream to cover the vines and fruit. The natural rainfall will not meet this want. The stream running through a bog should be permanent, and large enough to carry a mill. A reservoir should be made a short distance above the plantation, sufficiently large to contain water enough to flood the ripening fruit in a few hours at pleasure.

FLOWAGE A REMEDY FOR THE WORMS.—It has been proved that the fire worm, which preys upon the leaves of the cranberry, and thus destroys the crop, is not killed by flowing in winter. Leaves were taken from the water in early May, put under a glass, kept in the sun, and the eggs hatched in a few days. This shows that the eggs are laid the previous season, and also shows the necessity of flowing early in June, after the eggs are hatched, to kill the young worms. This brief flowing is also fatal to the fruit worms, which are so destructive to plantations that have no protection from water.

SAND OR GRAVEL, AND HOW MUCH?—The earlier practice in coating the bog after it had been cleared of turf and levelled, was to use sand, as clean as could be found. It was proclaimed that this was essential and that there was no substitute. It is no longer an experiment to use gravel without screening, and without care to remove stones two or three inches in diameter, except upon the surface, where they might interfere with the planting and with the cultivation of the vines. One object in covering the peat is to check the too luxuriant growth of the vines, and to prevent the growth of grass and weeds. The stones favor this end. Another object is to hasten the ripening of the berries in September. Whether sand or gravel be used, it should be taken from the subsoil, and be as free from seeds of all kinds as possible. This will save much labor in cultivation. The best cultivators now advise a coating of six to eight inches over the peat. The vines will not come so early into bearing, but the fruit will be more abundant when it comes, and the plantation will last much longer. The cranberry business has passed its tentative stage, and is a safe investment for capital.

Potting Strawberry Plants.

A simple method of turning old tin cans into contrivances for potting strawberries is furnished by "H. H. H.," of Adams Co., Iowa. He writes us: "Unsolder the cans, and cut into pieces of about three by seven inches. Turn back one-quarter of an inch of each end, so that when the strips are bent around, they will clasp together, as shown in the engraving. In potting, the contrivance is placed on the bed near the runner, and pressed into the ground with the sole of the foot. The sharp edges allow it to push through the soil easily. A runner is placed in the center of the cylinder, and held by a stick or stone, which also serves to mark the place. When the plants are well rooted, the tin pots are taken up, unclasped, and the ball of earth placed in the new bed provided for it."

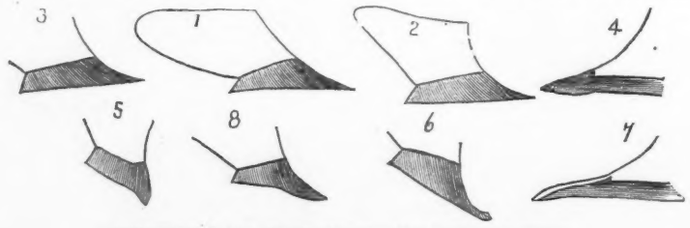
PLANT-POTTER.

Points in Selecting a Plow.

J. M. STAHL.

Success in cultivation depends more upon the plow than upon any other implement. If the plowing is poorly done, it cannot be atoned for by harrowing or rolling. Good plowing depends upon the plow and the plowman; especially upon the plow, yet no other farm implement receives less attention in its selection than the plow. Much of the excellence of a plow depends upon the shape and curve of the moldboard. Figure 1 shows a good moldboard. Figure 2, a poor one. It will be noticed that the former is long and gently curved; the latter is short and sharply concave. The first use of the share and moldboard is to act as an inclined plane, and instead of the soil being moved along the inclined plane, the inclined plane is moved under the soil. Still, this does not affect the law that the resistance will be in proportion to the quotient obtained by dividing the length by the hight. The reader can see at a glance that the draft of the plow with a moldboard like that in figure 1, will be much less than that of a plow having a moldboard as shown in figure 2. To the former, the soil will offer scarcely half the resistance it will to the latter, and other things being equal, the former is much the better plow, and instead of other things being equal, they are in its favor. Thus because the soil offers less resistance to the first moldboard, that will last longer. It will also turn the soil better. The reason why the second plow is hard on the team, is because it elevates the soil twice as high as is necessary. Such a plow frequently pitches the earth eighteen inches above the level of the furrow. This is apparent in plowing sod, many pieces of sod being turned turf upwards on the surface to grow again, just as the weeds of old land are brought to the surface to grow at once. The first plow elevates the soil no more than is necessary to turn it properly, and as the moldboard is but slightly curved, the ground is turned gently, without pitching, and laid inverted in the furrow. The second plow is totally unfit for breaking sod; not only will it wear out the team, but it will break the sods and pitch them in every position—on edge, at right angles with the furrow, and with the sod upwards. But the first plow will lay a continuous sod upside down in the furrow. Hence the ground can be harrowed in any direction until it is well cut up, without dragging turfs to the surface, and the work will make that solid seed-bed essential to the best plant growth. Sod plowed with the second plow will be almost as green after harrowing as before breaking, and will be full of holes and make a very poor seed-bed.

For a plow to do good work, the edge of the share must be a straight line, as shown in figure 3. The lower edge of the land-side should also be perfectly straight. When a good plow is placed upon a level surface, every point of the edge of the share and of the land-side will touch the surface. Any deviation from this is fatal to the steady, even running of the plow. But some blacksmiths do not know this, and get both lines crooked, as do many who know the lines should be straight, but are too careless to keep them so. Figure 4 is a fair illustration of a point one sees on a plow surprisingly often, when it is considered how effectually it will destroy the perfect running of the plow. This shape is produced by hammering too much on the upper side of the point. Figure 5 shows another misshape often given the point. It is bulged out at the side instead of the bottom. In one case the bulge pulls against the side and in the other case against the bottom of the furrow; and in both it increases the draft and makes the plow hard to manage. Figure 6 shows another misshapen point, not at all exaggerated. Here the point is bent around toward the land-side, and the plow will jump along, the point continually drawing it too far into the land, while the guide-pin will have to be set to pull it out. Figure 7 shows the point bent downward. This will make the plow "dip." When the ground is very hard it may be necessary to have the point thus bent, but it is to be avoided when possible. Figure 8 shows a plow with which it is impossible to do good work; yet this form of share is very common, especially in the case of old shares, as the course of all the work of many blacksmiths is to produce just the result shown in the cut. This share will draw into the land both below and at the side, making an added draft twice, on account of the double friction. Such a plow is hard on the team and cannot run steady. Careless blacksmiths not only destroy the proper shape of the share, but they burn it until it becomes brittle or soft. It is easier to heat the metal than to hammer it out when cold, and thus the share is warped and drawn out of shape and deprived of its temper. The only remedy for this is to let such blacksmiths severely alone. There are enough good smiths who will do their work properly. If your land is stumpy, get a plow with a wooden beam and upright. If these parts be of iron they will soon get "sprung" in twisting around stumps, and besides the metal makes the plow very heavy to lift around. But for smooth ground, especially stubble and sod, the iron beam and upright are the better. These may seem small matters, but they have much to do with workmanlike plowing, and what is quite as important, the ease and comfort with which the team, whether of horses or oxen, can do the work.



MOLDBOARDS AND PLOW POINTS—GOOD AND BAD FORMS.

Have You a Plow Shoe?

The following instructions, with accompanying sketches for making a plow shoe, are from Theodore Goodrich, Union County, Ill.: Take an oak board two feet long, six inches wide and two inches thick. Round off one end as shown in the figure; cut a groove in the center with a gouge, as shown at *a*, and round up the under side like a sleigh runner, as shown at *b*. Take a piece of oak board six inches wide, ten inches long, one inch thick, taper to a point, and hollow the under side as shown at *c* in the engraving. Fasten this on the oak board at *a*, with wrought nails well clinched, or better still, nuts and bolts, heads countersunk on the under side. Place the plow upon the shoe, and slip the nose of the plow under the cap, and it is ready to be drawn to the field. This plow shoe will be found easy to make, and a great convenience when transporting the plow from one part of the farm to another, as it protects the share from contact with stones or gravel, and prevents injury to the point. It also avoids the tearing up and disfiguring the roads, seen where plows are moved without a shoe.

PLOW SHOE.

The Trout Pool.

The scene represented in the engraving is one that will appeal to every follower of the angler's art. If asked to locate it, he may say that the picture recalls a scene in the Adirondacks, or perhaps that it is like a tributary of the Restigouche, in the backwoods of Maine. If told that this bit of primeval nature is directly upon the present borders of the City of New York, he might be pardoned for being incredulous. That such a spot could have remained in its original wildness, is due to the fact that the early settlers acquired large tracts for their suburban residences, and these have descended from one generation to another unchanged, to the present time. The "Trout Pool" is upon the tract selected by the Park Commission, to form the Bronx Park of the future, and one of our editors in his daily drives about New York frequently catches views of it from the road. The tract comprises lands extending from half to three-quarters of a mile on both sides of that small, but most picturesque river, the Bronx, and includes portions of the Lorillard, Neale, and Lydig estates. These lands have descended unchanged to the present representatives of those families, and as trespassers have been, in a great measure, excluded, the stream offers to the skilled angler as favorable a field for his sport as he could wish. It is a peculiarity of the trout, that it must be "wooed and won," by the true sportsman. In such a stream as the one under consideration, the "pot" fisherman may try in vain, and he will declare that the stream has been "fished out." The skilful angler knows by intuition just where the "speckled beauties" like to hide; he approaches their retreat with respectful caution, and selecting a fly according to the season, makes a cast, which the veteran trout, that has turned with disgust from so many baited hooks, cannot resist, but he at once rises to the fly, as if willing to be caught, knowing that he will fall into hands that will "handle him as if they loved him." It is not in the number, or weight of his capture, that the true sportsman finds his keenest pleasure, but in the skill required to tempt the wily fish from its retreat, and the adroitness called forth in landing it by a slender thread. The knowing ones do not find it necessary to go to the wilderness for a day's sport. There are in Westchester County, and on Long Island, streams within easy reach of the city, which, though their deep, still pools are barren to the bunglers, will this month respond to those skilled in the "gentle art" with satisfactory returns in both sport and fish.

Knowing How and When to Drain.

W. H. COLEMAN.

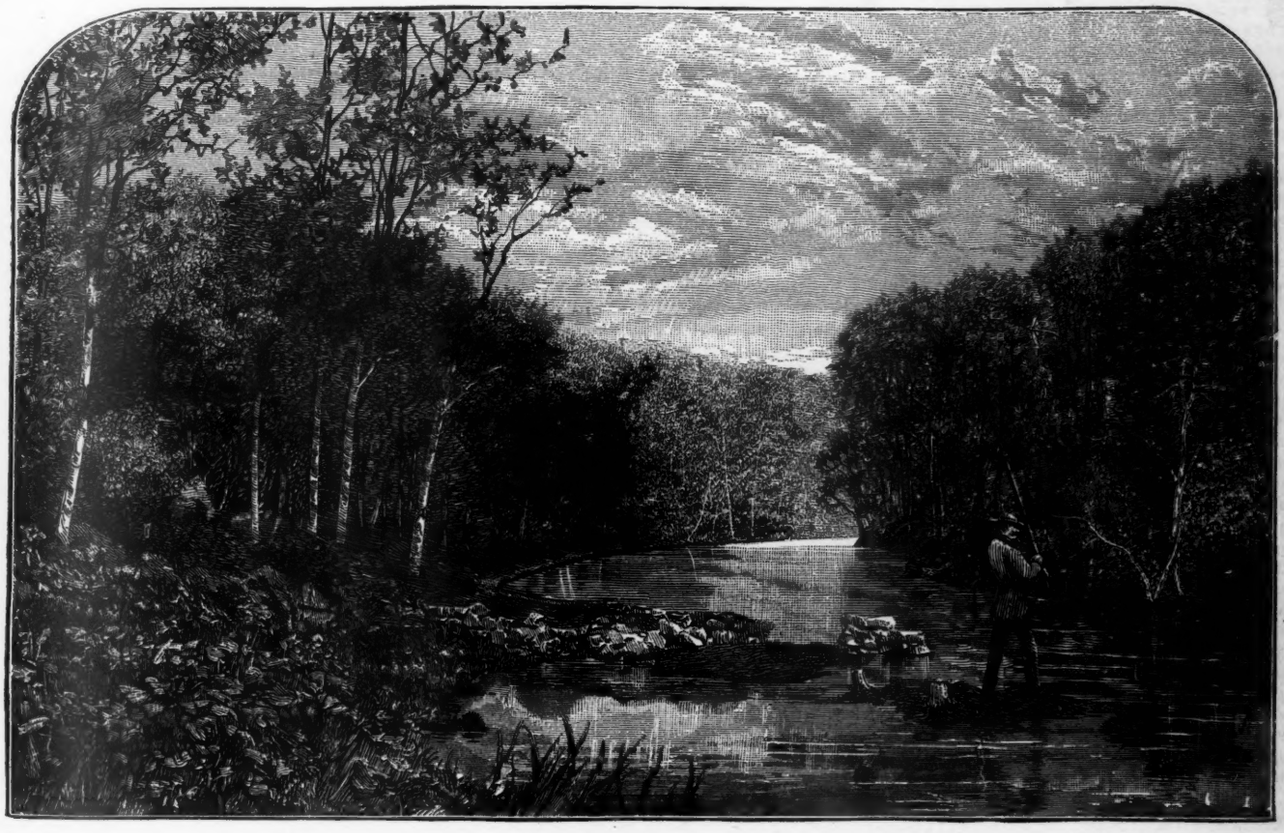
After reading an elaborate work on tile-drainage, one is impressed with the idea that this is the perfect and only way to drain, and unless governed by a wise forethought, he is very likely to launch out into extensive and expensive schemes of drainage not fitted to his soil and consequently not yielding the return which a simpler plan might have done.

Tile-drainage is good in its place. John Johnston, with his farm of heavy, white clay, on the eastern bank of Seneca Lake, holding water like a bowl, freezing out the winter grain, hindering the spring start and stunting the growth of corn, did a wise thing when he imported a few Scotch tiles and tools and made and laid the first tile-drains in America. The jeering neighbors who rode by his farm, wagging their heads at "Old Scotch Johnston burying crockery under ground," lived to see that cold soil warm up and respond to the novel treatment in early crops and generous yields, leaving a balance in the owner's pocketbook, which changed laughter to sober inquiry, and led to an humble imitation of the man they once derided.

For heavy clay, with a good fall and outlet, there is no question about the wisdom of draining deeply with tiles. Not only is surplus water drawn quickly off, but the solid clay becomes loosened and aerated, and the rich rainfalls are drawn through the soil, leaving the fertilizing treasures which they have gathered in their passage through the air where the crops can speedily take hold of them.

But suppose you have your clay and not your fall, the land lying nearly level? It is evident that deep drainage will not answer. There is no magic about the tiles themselves. You may dig your drains skilfully and lay the tiles perfectly, but if there is no outlet, there will be no action, and the soil will remain unchanged. If the tiles are laid shallow, then there is danger of interference by the plow. We knew a nursery field of this sort where it was difficult to get a sufficient fall, and though every care was taken, the outlet pipes would fill with sediment, and the mains, where they traversed swales, would be knocked out by the plow. During the five or six years that the field was in use, there was little apparent good resulting from the drainage. Even the surface water continued to stand in the holes made by digging, long after it should have passed away.

When we turn to loam and gravel soils the question of drainage becomes still more open. A loamy topsoil underlaid by gravel is self-draining, and tiling would almost be an impertinence. Such is the character of the land in many localities where the rolling surface continually lifts into hillocks and mounds of gravel, and numerous brooks wind through the intervales. An excellent farmer, living in such a section, experimented in drainage for some time, using stones, as tiles were not at hand, and finally concluded that underground drainage was not needed by his land. The soakage rains were carried away without any trouble, but the crops were sometimes hurt by floods and sudden storms. He adopted another plan. In laying down his fields to grass, he took pains to lay the lands in the direction of the waterfall, and widened and finished the dead furrows by hand, converting them into broad, shallow waterways which carried off easily, yet slowly, the surplus storm-water, while allowing a reaper or mower to be driven easily over them. The plan proved a perfect success, and in a few years there was not a rod of unimproved or unproductive land upon his farm. A brook ran irregularly across these lands, leaving elbows and corners of swaley, swampy ground.



THE TROUT POOL OF THE BRONX.

Engraved for the American Agriculturist.

The owner cut a straight channel for the brook, then, going to one of the gravel-knolls before mentioned, and which lay conveniently near, he plowed and scraped down gravel enough to cover the low ground two feet deep, which in a few years became a beautiful meadow, while the knoll was reduced to a gentle swelling in the surface of the ground.

Thus by study of the character of his own soil, judicious expenditure of labor and use of the means right at hand, this farmer brought his fields up to the highest point of productiveness. When he took the farm it barely supported fifteen cows; when he completed his treatment of the land, it carried easily thirty to forty. We commend his example to all land-owners about to drain, or otherwise permanently improve their ground. A careful study of the conditions under their feet will rectify the conclusions drawn from books, and save perhaps many hundred dollars of useless expense.

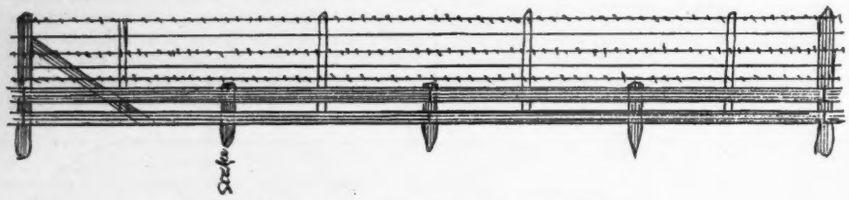


Fig. 1.—ONE PANEL OF IMPROVED WIRE FENCE.

Cheap and Effective Barbed Wire Fence.

Mr. I. C. Early, Nelson Co., Va., sends us sketches of a fence, which he thinks obviates all the objections to ordinary barbed wire fences. He says: This fence has been in use on this farm for a year, and though the stock of the neighborhood are noted for their troublesome propensities, and had never seen a wire fence before, not an animal has been hurt by it, and the wires are as taut as when first stretched. The improvements in this fence consist, first, in having two six-inch boards at the bottom. Second, in placing the wires very close together. It being necessary to have barbs only on one side of each space between the wires, plain galvanized wire may be used for every alternate strand, thus greatly lessening the expense. Third, by the use of strips and short stakes, the posts may be placed thirty-two feet apart, and the fence remain as perfect as if the posts were every eight feet. Fourth, to make the fence man-proof, I make use of a bracket of three-eighth-inch iron, or of one by two-inch wooden strips. The form of the brackets is shown in figures 2, 3 and 4. A barbed wire is attached to the short arm of the brackets, which are fastened to the posts in such a manner as to stretch two wires on the same horizontal plane, and fifteen inches apart. The material required for each panel of the fence shown in figure 1, are: Two posts, three barbed wires, two plain wires of galvanized iron, No. 12, two six-inch boards, sixteen feet long, three stakes about three feet long, and sharpened at one end, four strips, four feet long, and one and one-half inch square. To build the fence: Lay off the ground by setting small pegs eight feet apart, then dig the holes, and set the posts at every fourth peg. Drive the sharpened stakes into the ground at the three pegs between the posts, so that the top of the stakes will be nineteen inches above the ground. Nail the boards on the first stake near the ground, and the second one three inches above the first. Then mark off the place for each wire on the first post, fasten the bottom wire, and put up as far as the first stretching post; then add the other wires, using first a barbed wire, and then a smooth one. The wires should be fastened to the posts with long staples. The strips are to go in the middle of the eight foot spaces; they should not quite touch the ground; fasten them to the boards with nails and to the wire with short staples. These strips can be made of poles or saplings, and the stakes of short or crooked pieces from the posts. To attach the man-proof part: If the brackets are of wood, nail them to the posts, sawing off the horizontal arm to fifteen inches from the top wire, as in figure 4; stretch the wire and fasten to the end. If the brackets are of iron (fig. 2), spike the horizontal arm to the top of the post, then put up the barbed wire loose under the oblique arm, and stretch it. Then spike the foot of the oblique arm to the post, and slip the wire into the angle, and close the bracket by mashing the arms on the wire. Figure 3 shows the method of attaching the iron bracket to the post.

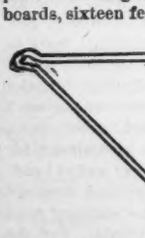


Fig. 2.—IRON BRACKET.

Birds and Fruit.

Inquiries as to what will keep the fruit-stealing birds from the cherries have already come and we shall soon have the same concerning grapes. We welcome the birds while they are nesting, for in feeding their young they destroy a vast number of caterpillars. When the young are fledged they and their parents are ready for the ripe cherries, and partake of them so freely that it becomes a question if it would not have been as well to let the insects destroy the crop at the outset. If we are to have cherries, grapes and other fruits it becomes a matter of importance to know what to do with the birds. It is admitted that all birds are not equally destructive. We find that when fruit-growers in convention discuss the character of individual birds, there is very little agreement. The trellises of the vineyard afford ample protection to the birds, and they very often do much mischief before they are noticed. Aside from the radical measure—powder and shot, other methods have been proposed. On the vineyard of the late J. Knox, near Pittsburgh, Pa., a small windmill was so arranged that it would set in motion a series of clappers that would make a great noise. This was found to accomplish the work effectively. In England especially, with trees that are trained to walls, or as espaliers, nets are used to protect cherries and other fruits from birds. The use of living cats to scare away birds is said to have been successful. The cat is provided with a collar to which several feet of small chain is attached. At the other end of the chain is a ring, large enough to slip over a strong stake driven in the ground near the tree. The cat being thus allowed considerable freedom of motion, the birds do not know that she cannot climb the tree, and keep at a respectful distance. A cat tethered in a similar manner to a wire stretched horizontally to give more freedom is said to keep birds from strawberries.

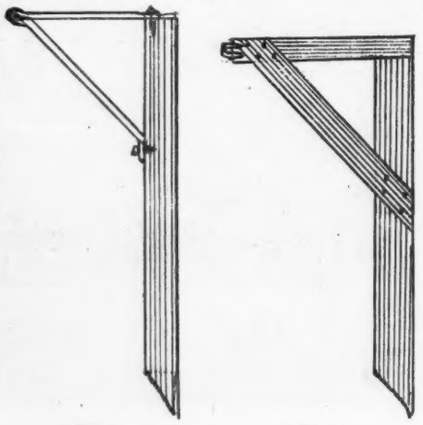


Fig. 3. ATTACHED BRACKET.

Fig. 4. WOODEN BRACKET.

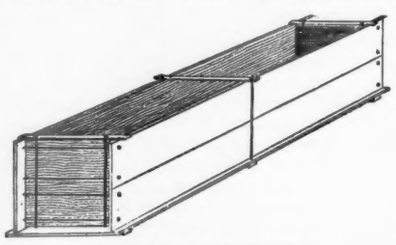
Specimen Orchards.

THEODORE GOODRICH, UNION CO., ILL.

Of all classes of business men, fruit-growers should be the slowest to take things from hearsay. Nothing but demonstrable facts should satisfy them. Their business is dealing with "futures," too far remote to be trifled with. They plant trees to bear fruit, not next autumn, like a field of corn, but five or twenty years from now. Hence they must be very sure that the tree they plant this spring is not only of the best age and shape, but of the variety best adapted to their purpose. How are they to know this? Only in one way—by actual experiment. A grower sees a beautiful specimen of fruit, and finds it highly recommended. The fruit pleases him; as a specimen it seems perfect; but unfortunately it was grown many miles away, or in another State, and how is he to know it will succeed on his farm? The soil may be different, perhaps the climate is also. His only sure way will be, to buy five or ten trees, plant them in a specimen orchard and see. In due time he will know whether to plant that variety by the hundred, or dig up the trees he has. If every one of his neighbors also had a few trees on trial, their united testimony would be conclusive for that locality. This should apply to small fruits as well. The "Big Bob" may be the biggest of strawberries, but how can we know it is the best for us, if not by actual trial? Let each grower set apart a plot of ground for a specimen orchard, and each year add several new varieties. Give an average amount of care and cultivation, and carefully note the growth, habit and peculiarities of the trees, and finally the fruit of each. The writer has such an orchard of trees, gathered from four States. It comprises new varieties and "promising seedlings." The trees are not yet large enough to bear, but if the future profits equal the present pleasure of comparing the different trees, the venture will be a very satisfactory one, to say nothing of the information gained.

A Cooler for Setting Milk.

The advantages of the deep setting of milk at a low temperature can be enjoyed by means of the simple cooler described by A. H. Strohbehn, Scott Co., Iowa, who sends the sketch from which the engraving is made. To make the cooler he says: "Take six pine planks, two inches thick, twelve inches wide and six feet long; four boards sixteen and a half inches long and twelve inches wide, and construct a box with the ends gained in with a groove a quarter of an inch deep. Place a rubber strip between the planks and clamp with rods and bolts to make as tight as possible. Provide a lid to keep out dust and to shade from the sun. Place



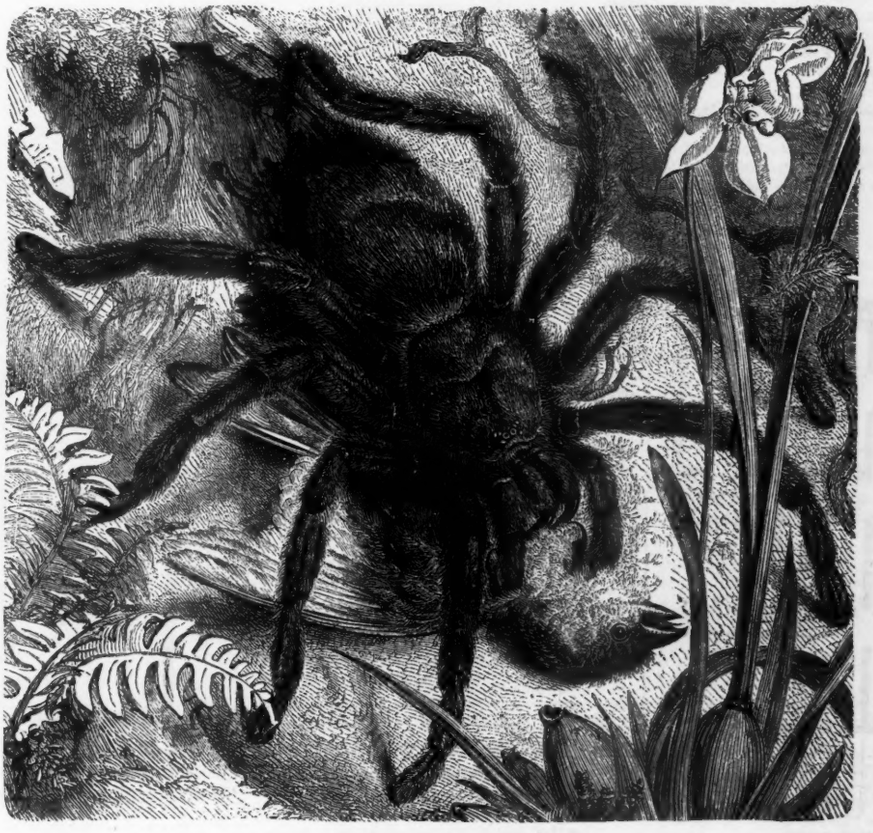
A COOLER FOR SETTING MILK.

a faucet at the bottom by which to run off the water when it has become warm. Set the cooler near the well whence cold water can easily be drawn and keep the cans of milk submerged in the water. If there is a supply of ice, the temperature of the water may be still further reduced, and the cooler rendered more efficient. A box of the size here given will have room for three twelve-gallon cans."

The Great Bird-Catching Spider.

The giant among the spiders is the Great Bird-catching Spider (*Mygale avicularia*), of Surinam and Cayenne. There are other species, but none of them equal this in size. Its body is two inches long, and when its legs are spread, it measures eight inches across. This, and related species, form the group of Bird, Bush or Strangler Spiders, so called because they destroy small birds; though some, on negative evidence, deny that they capture birds, the evidence of several observers establishes it as undeniable fact. Bates found one of these spiders engaged at this occupation. Over a deep crack in the bark of a large tree, he saw a solid white web, in which two small birds (linnets) were caught. One was dead, the other, immediately under the spider, nearly so. After driving the spider off, he found the dying bird covered with a dirty liquid, that had been exuded by the monster. But Mr. Bates states that his observations were new to the inhabitants of Brazil, who call these and similar, somewhat common spiders, "Crab Spiders." Only a few of the species live on trees or bushes, but in holes in the walls, under eaves of houses, and they are sometimes seen on the walls of buildings, under stones, and in subterranean burrows. One strong, brown species (*Mygale Blondii*), of South America, easily distinguished by two yellow stripes on the legs, builds a burrow, slanting downward into the soil, over a foot in length. The walls of this are covered with a silken web, and toward evening the spider awaits its prey at the opening. The animal retreats when heavy steps come near, but at any attempt to capture it, is always ready to bite, and to strike its powerful, sharp claws into one's finger. The wound is painful, but not fatal, as has been often stated. One of the Great Bird Spiders was kept alive for over a year in a glass jar. It completely devoured small garden frogs, chewing them into a pulp which it swallowed, leaving nothing. The Great Bird Spider is pitch-black, with rusty brown or red hair, and has a coppery red feit on the flattened end-joint of the legs. A characteristic of the genus (*Mygale*) is the closely set, eight eyes, all of the same size, and placed in this x form. They have strong, long and closely-haired legs, the front pair being as long as the longest hind pair, and the males have two bent hooks at the second joint of the front pair of legs. They have four air holes at the base of the abdomen, and only four spinnerets, of which two are very small. A large species of *Mygale* is common in Texas, where it is called "Tarantula." The Tarantula of Southern Europe belongs to a different genus. The interesting Trap-door spider of California is a species of *Mygale*. This makes a conical nest in the ground, lines it with silk, and closes it with a closely-fitting lid, which it holds down and excludes its enemies.

THE LITTLE STONE OWL.
Engraved after Brehm for the American Agriculturist.



THE GREAT BIRD-CATCHING SPIDER.
Engraved after Brehm for the American Agriculturist.

The Little Stone Owl.

The Stone Owls (*Athene*) are small, have a rather large head, a short, strongly bent, hooked bill, which is compressed sidewise. The toes are powerful; the wings are short and rounded, and the tail short. The feathers lie close to the body, and cover the legs sparsely; the toes have only a hair-like growth on them. The Little Stone Owl (*Athene noctua*), is a common European species. It is a handsome, harmless bird, to which the superstitious ascribe all kinds of mischievious deeds, and among the ignorant, this little owl is considered a bird of ill omen. It is eight to nine inches long, and twenty to twenty-two inches spread; the wings are six, and the tail three inches long. The upper part of the body is a deep, mouse-gray, irregularly spotted with white, the face is grayish-white, the lower body whitish, and has longitudinal stripes of brown spots; the wing and tail feathers, of the same color as the upper part of body, have rust-yellow spots, which form five indistinct bands across the tail. The eyes are sulphur-yellow, the bill greenish-yellow, the feet yellowish-gray. The young birds are of a deeper color than the old ones. The little owl has many enemies, among them the hawk and weazel, the latter stealing the eggs when it can get at them. All smaller birds follow the Stone Owl in a noisy manner, and teaze it in all kinds of ways. For this reason it is made use of by bird-catchers, who keep one of the owls cooped up in a field, and place their traps, etc., near by. This owl is very useful in destroying mice and insects. In some parts of Europe, tamed Stone Owls, with cut wings, are kept in gardens. Besides Stone Owl, the bird is known in various parts of Europe as Sparrow, Lark, House, Barn, and Funeral Owl. The Burrowing Owl, of the country west of the Mississippi, is also an *Athene* (*Spheotyto* of some naturalists), *A. cunicularius*. It is about the size of the bird above described, but has longer legs. This owl is very abundant in the towns of the prairie dogs, the burrows of which serve as shelter to which it can retreat, and as a nesting place. Its rapid movements are in marked contrast with those of the sluggish rattlesnakes, which also live in the burrows. Unlike most owls, this is most active during the day.

A Cottage Costing $1,500.

D. W. KING, ARCHITECT.

This simple and unpretentious design has seven rooms with all necessary halls and closets. The building is adapted for a small family, and makes an excellent farm residence. There is a cellar under the hall and parlor only.

Fig. 2.—FRONT ELEVATION.

The hight of the cellar is six feet six inches; of the first story nine feet; and of the second story eight and one-half feet. The cellar is excavated to a depth of three feet, and the loose earth used in grading about the walls at completion, so as to leave two and one-half feet of the foundation exposed. The foundation walls and chimneys are of hard brick, laid in cement mortar to the top of the ground; to be laid in best lime mortar from thence, except chimney tops, which are also to be laid in cement. All with close joints, washed down with dilute acid and stained with linseed oil and venetian red—flues separate to the top with all required thimbles set in the brick-work. Blue-stone sills and coping provided and set in cellar windows and area. The inside walls and ceilings are hard-finished on two coats of best brown mortar and seasoned lath, all angles made solid and true. A brick cistern, six feet in diameter and eight feet deep, is built in the rear of the house, with vitrified earthen drain connected with the leader, and has an overflow pipe, domed top and flagstone cover; eight inch walls and bottom plastered on the inside with Portland cement, and has a proper filter.

The frame is of sound, seasoned spruce timber, framed, raised and braced in a secure manner. The floor beams and studding are sixteen inches from centers; the rafters twenty inches from centers. Each tier of beams is thoroughly bridged with one row of cross-bridging placed in the middle of each span. Headers and trimmers about stairs and chimney breasts are to be of double thickness. The exterior walls and roofs are sheathed with one inch, dry, surfaced lumber; the side walls are papered, and clapboarded with clear, white pine beveled clapboards, and the roofs shingled with best cut white pine shingles. The lower ends of rafters are dressed and exposed to view, the cornice formed by nailing tongued and grooved roofing boards upon the upper side, with the surfaced side down, with a neat moulding at lower ends of rafters. The hood over the front door, cornerboards, belt and base courses, gutters, outside steps, cresting and finials are all of white pine, as shown on the drawings. The cellar window frames are of plank, all others have one and one-eighth inch jambs and blind-hanging stiles, two inch rabbeted sills, and one and one-half inch sashes, all of dry, white pine. The sashes are glazed with double thick glass and balanced with weights, with the exception of windows in the hall, which are hinged. All windows have outside blinds of white pine.

The floors throughout are of good quality, seven-eighths by four inch tongued and grooved mill-worked white pine, driven well together and blind-nailed to each bearing. The cellar stairs are of plank. The main stairs are of clear pine with six inch turned ash newel, and one and one-half inch ballusters, with a three by four inch rail. The door jambs are one and one-eighth inch thick, with stops planted on, moulded architraves, turned corner blocks, plinth blocks, and wall mouldings to mitre with top member of base. Beveled hardwood saddles are put to each door with rubber-tipped door stops where required. Pantry is fitted with four shelves and one dozen hooks. Wardrobe closets have one shelf and one dozen black japanned iron hooks. The doors are of seasoned clear white pine, paneled and moulded both sides, except the closet doors, which are moulded one side only. The outside doors are two inches thick, glazed as shown. Closet doors are one and one-quarter inch thick, all other doors one and one-half inch thick. All to be hung with heavy, loose-joint, japanned iron butts, with brass-faced mortised locks, brown mineral knobs and suitable roses, drops and escutcheons; front door lock has night latch and black porcelain knob and bronze rose, drop and escutcheon.

Fig. 1.—COTTAGE COSTING $1,500.—PERSPECTIVE VIEW.

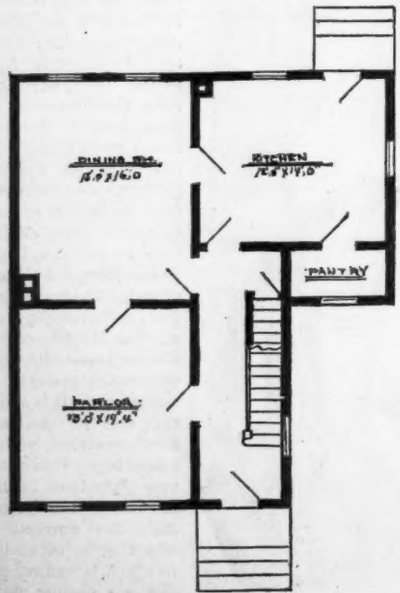


Fig. 4.—FIRST STORY.

All outside and inside wood work and outside metal work have two good coats of white lead paint, all knots covered with shellac, and other defects stopped with putty before painting. The colors outside are in shades of brown, inside work as directed at time of painting. A suitable galvanized iron kitchen sink and suction pump, properly connected with the cistern, is placed in the kitchen. All flashings, leaders and linings of gutters to be of I. C. charcoal tin.

Estimate of House Costing $1,500.

50 cubic yards excavating, @ 30c.	$ 15.00
214 feet stone footings, @ 20c.	42.80
13,000 bricks, furnished and laid, @ $6.	208.00
40 feet bluestone sills, steps, and coping, @ 30c.	12.00
450 square yards plastering, @ 35c.	157.50
5,500 feet framing timber, @ $15 ₱ M.	82.50
4,000 feet hemlock sheathing boards, @ $17.	68.00
12,000 shingles, @ $5 ₱ M.	60 00
150 pounds sheathing paper, @ 4c.	6.00
1,200 feet finishing white pine lumber, @ $5.	60.00
2,000 feet white pine T and G flooring, @ $27 ₱ M.	54.00
432 white pine clapboards, @ 20c.	86.40
1 cellar window, complete.	3.00
2 casement windows, @ $3.25.	6.50
10 windows, complete, @ $4.	40.00
11 doors, complete, @ $4.25.	46.75
3 doors, complete, @ $4.	12.00
1 door, complete.	6.00
Stairs, complete.	30.00
Pump and sink, complete.	12.00
5 kegs nails, @ $3.	15.00
Hardware, not included above.	20.00
Tin work and leaders.	25.00
Cartage.	15.00
Carpenter work and labor.	300.00
Painting.	75.00
Cistern	30.00
Incidentals.	11.55
Total.	$1,500.00

Hints for Country Home Builders.

In the erection of a farm house or country residence, there is always a choice to be made in the location, and too much care cannot be exercised in selecting the site; a few feet in either direction may prevent damp cellars, and future malarial or typhoid fevers. Dry, gravelly, sandy or rocky soils, that have not been built upon, are undoubtedly the best. Clay soils are objectionable on account of dampness, and made ground, composed of rubbish, should above all be avoided. The summit of a hill is too exposed, and the bottom of a hill too damp; hence a position midway between these extremes, or a gentle rise of ground, is to be preferred. The building should be so placed that the living room shall look to the south, or to the southeast. A few trees, not so near as to exclude the sunlight, will afford shade during the heat of summer, and protection from the winds in winter, besides relieving the barren surroundings of isolated houses. Where the prevailing winds are violent, it will be well to plant a proper shelter belt of evergreens. While many evergreens will answer the purpose, the Norway spruce, on account of its rapid growth, its dense branching, and its perfect hardiness, is perhaps best suited to this purpose. Instead of planting a single row of trees, where the land is abundant it is better to plant several rows. Set the first row ten feet apart, the second at the same distance, alternating with the first, and the third row alternating with the second. If space can be afforded for but a single row, a more immediate effect can be produced by planting the trees nearer together. The young trees may be set four or five feet apart, each alternate one to be removed when they get large enough to crowd and interfere with each other. If regular rows are objectionable, the formality may be broken by planting a tree here and there to give the idea of a grove, rather than a shelter belt. In our climate a veranda is very desirable, both as protection from the sun in summer and shelter from the storms in winter. Verandas can be supplied both at the front and back of the house, at a very slight increase of the cost. These should be of ample dimensions, and if climbing vines are planted against the supports, they will add greatly to the comfort

Fig. 3.—REAR ELEVATION.

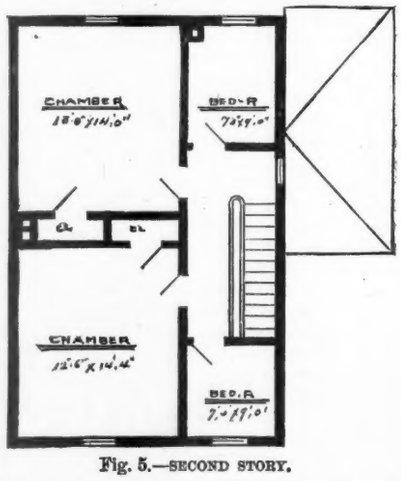


Fig. 5.—SECOND STORY.

of the inmates, giving the exterior a tasteful and home-like appearance, not obtainable in any other manner. The common Virginia Creeper, or the climbing Bittersweet or Wax-work (*Celastrus scandens*) of the woods, will furnish most effective shade. Wistarias and other exotic vines may be had from the nurseries at a very small cost.

Such a residence should have, at least in front, a lawn of as great an extent as the locality will permit. A lawn, to be successful, needs a good soil. It is a mistake to throw out the earth excavated from the cellar and deposit it where the lawn is to be. A perfect level is not necessary or desirable in a lawn, as an undulating surface conveys the impression of a greater area than a level. Where terraces are necessary, they should be made and turfed. Ornamental shrubs and trees of moderate growth, especially evergreens, may be planted with good effect. It is becoming customary to do without a front and side fence where such a protection is not absolutely necessary; but if a fence must be used, an opportunity for displaying good or bad taste is presented in making the selection. Have the gates substantial and well hung. Set the posts firmly, especially those which support the gates, so that no sagging may occur. An edging of turf or box will embellish the walks, which should be laid only where necessary, and then, as direct as possible. Great mistakes are often made in this matter of laying out walks and drives, through an erroneous idea that convenience should be sacrificed to ornamentation.

The Department of Agriculture.

With a change of administration, it is taken for granted that there will be a new Commissioner of Agriculture, and a number of persons more or less unknown as agriculturists have been named as probable incumbents. It makes but little difference to the agriculture of the country as to who may draw the salary of Commissioner, so long as the relations of the Department to the farmers of the country are so indefinite. Men come, and men go, but the seed shop goes on forever. The degrading of the Department to that of a medium for the distribution far and wide of unwelcome seeds, is not altogether the fault of the Commissioners. A package of seeds, bought and forwarded at the public expense, is a cheap and ready method by which Members of Congress can show attention to their constituents, and the distribution is much favored by Congressmen. Indeed, a former Commissioner told us that, were he to abandon the distribution of seeds, he doubted if the appropriation for the Department could be carried through Congress. A neighbor came to us a few days ago with an expression of great disgust, and showed a postal card he had received from the Commissioner. It notified the recipient that at the request of Hon. ——, a package of vegetable seeds had been sent. The postal stated: "The object of this distribution is the promotion of the interests of agriculture, by introducing into the various sections of the country, such new and valuable products as may be adapted to the soil and climate of each." A very laudable "object." An examination of the package showed the Department's estimate of the "new and valuable" in "garden sass." There was half a pint of "Sugar Corn, Stowell's Evergreen," a small packet of "Cucumber, Improved White Spine," another of beet, and two others of spinach. "Stowell's Evergreen" sweet corn may be "new" at the Department, but we grew the variety at least thirty years ago, and it may be had at every seed store in the land. The other varieties were not quite as old as this, but to be had of all the dealers, and far from "new." The absurdity of this seed business is seen when we compare its claim, "the object is the the promotion of the interests of agriculture," with the meagerness of the performance.

Animal Ailments.

Diseased Hog-meat.—"J. S.," Montgomery Co., Mo., asks us whether the liver of a hog which was covered with blisters the size of a small hen's egg, and full of watery fluid, is fit to eat.—Diseased meat is never fit for human food, under any considerations. That this liver was diseased, there can be no question. Probably the "blisters" were occupied by some animal parasite. The meat and everything pertaining to an animal thus affected should be destroyed by burning, or, if more convenient, buried so deeply that dogs cannot reach it.

Imperforate Teats.—"C. H. G.," Perrysville, Pa., has a Jersey heifer which dropped a calf a few weeks ago, and is in good health, but gives milk only out of the two hinder teats. He asks us if anything can be done to cause the milk to flow from the other teats. The correspondent does not state whether the teats are of the natural size or have at any time given out milk. The probabilities are that they are undeveloped, and that they will always be useless. It is not uncommon to find one teat of the four in this condition, but rarely is it that two are thus affected. Under the circumstances, may it not be presumed that the animal gives the same quantity of milk with the two teats as if the four were normal? Nature provides for such deficiencies. While in milk, it is not best to undertake any surgical operation, beyond passing a probe to ascertain the condition of the passage, and whether such exists. If any attempt to open the teat is to be made, it should be done when the animal's milk has dried up, and should be executed by a competent person who understands the anatomy of the parts.

Warts on Cattle.—"F. N. O.," Hammond, Wisconsin, asks us for a cure for warts on cattle. Warts may be best treated by removing them by means of sharp scissors, and touching the cut surface with lunar-caustic, chloride of zinc, or blue-stone. When it is not desirable to cut them off, they may be strangled by applying a ligature of strong thread about the upper portion.

Hollow Horn.—The disease commonly known as "hollow horn," has no immediate connection with the horns, as animals without horns manifest the same symptoms. The disease in question is the result of inflammation extending from the mucous membrane lining the nostrils, into the sinuses of the skull and horns, there being a direct communication between these parts. Debility, improper and insufficient food, exposure, and all other causes that tend to weaken the system, may give rise to this condition. The treatment must then be such as to counteract this deficiency, and should consist mainly of good nursing. Keep the animal in dry, warm, well ventilated quarters, pay particular attention to carding and brushing, give nourishing food, and a little physic, if necessary. Rub the spine frequently. Boxing the horns is useless and barbarous, and is to be placed in the same category with cutting off the tail as a remedy for the "wolf," as still practised by the ignorant.

Leg Swelling.—Josiah Benedict, Burlington, Kansas. The swelling of the legs of the mare is dependent on weakness, and want of proper circulation in the parts. Give regular daily exercise, hand-rub the limbs thoroughly, and bandage with a flannel roll sufficiently long to extend from the pasterns to the hock. Renew the bandages, which should be four inches wide, and give the mare thorough grooming and hand-rubbing of the skin daily.

Chat with Readers.

Why not give your Names?—If "A Reader" had sent her address, she would have at once learned that we knew of no market for her kind of wood....A "Twelve Years' Subscriber" asks about a pear with which he is having trouble. Had he mentioned the variety, we might possibly have helped him.

Malt Sprouts for Cows.—*Wm. Marsh* says he is feeding his milch cows four quarts of malt sprouts each per day, in hope of making rich manure. We told him he should feed more, but he is afraid they would scour his cows. With us this is not the case, but probably something depends on the character of the other food.

Substitute for Pea-Brush.—*A. W. Lansing*, Albany Co., N. Y. The best substitute for pea-brush is galvanized iron wire No. 18, stretched between posts six inches in diameter, in double strands, on each side of the posts. The first wire should be six inches from the ground, and the others every eight or ten inches above.

Turnips in Oregon.—*Mr. Frank M. Sebring*, of Douglas Co., Oregon, writes us under date of February 23: "I have turnips growing in the garden where the stalks were thrown, after cleaning out the seed, that are now eleven inches in diameter—this without any cultivation or manure. Variety, purple top shot-leaf. Beets and carrots also," adds Mr. S., "grow to an enormous size."

Salt on Cabbages.—*Wm. Marsh*, of Batavia, informs us that last year he had some cabbages, set out late in July, that looked for some time as though they would amount to nothing. They made no growth, and in addition to this, were attacked by the green worm. He scattered some common salt on them, say a handful to three or four cabbages, and in a few days, the plants, he says, "shot right up," and he had a fine crop.

Potato Bugs.—*John McCullough*, Henderson Co., Ky. The only certain remedy for the Colorado Beetle, commonly called the Potato Bug, is arsenic in the form of Paris green or London purple—a tablespoonful stirred in a pail of water, and applied in any convenient manner, either by use of syringe, the watering pot, or even sprinkling with a whisk-broom. These poisons are not soluble, and the mixture must be kept stirred up from the bottom. Care should be taken to keep these violent poisons where no accident can happen to animals or persons.

Influence of Stock on the Graft.—*Gustave Gross*, of Bond Co., Ill., asks us whether the graft is influenced by the stock. The graft is more or less affected by the character of the stock, as is seen by the dwarfing effect produced by some kinds of apple stocks. While nurserymen usually sow mixed seed for the purpose of raising stocks, it would no doubt be better could they work early varieties upon seedlings of early fruits, and so with late varieties. The difference in stocks probably in a great measure accounts for the diversity in the behavior of the same fruit with different cultivators.

Hungarian Grass.—*W. Branskill*, of Canada, inquires about Hungarian grass. Cut before it is too old, the hay from Hungarian grass is by some valued equally with Timothy, while others regard it as slightly less nutritious. It should not be sown until the soil is thoroughly warmed. June is the proper month, but it will make a crop if sown as late as July. From three pecks to a bushel of seed may be sown to the acre, and the crop should be ready to cut in about six weeks. It is important to cut this grass while in flower. When seeds begin to form, a barb or bristle which accompanies them is apt to become too hard, and sometimes the hay on that account, is injurious to horses.

Manure for Asparagus.—*Geo. Plumb*, Monroe Co., N. Y., asks us: "What manure is best for an asparagus field, set three and four years ago, just coming into cutting this year? Roots set eighteen to twenty inches deep in a loamy soil. I have been much interested in the remarks in the *American Agriculturist* in regard to the use of nitrate of soda, and as I have two and one-half acres of asparagus, I should esteem it a favor if you would answer the above." We have found great benefit from nitrate of soda, sown at different times during the growing season, on the asparagus bed. We sow broadcast, say three hundred pounds per acre each time, two or three times during the growing season. We think you will find it a profitable application.

California or Mexico Tree Bean.—In proportion to the seed planted, this bean is an enormous yielder. There are places where this is a point of importance, but with old bean growers, the saving of a few quarts of seed, more or less, per acre, is of little consequence. The figures in the seed catalogues, representing a bean growing like a tree, are in part imaginary. Planted in the ordinary way, the plant looks more like a hill of tomatoes than a tree. They do not ripen as early as is usually desirable. As we said before, if you want the greatest yield of beans from a pint of seed, plant these so-called tree beans two or three feet apart, one or two beans in a hill, and you will be likely to get what you want. The beans are white, resembling the "Navy," a small pea bean, and are of good quality.

Highly Colored Fruits.—*E. P. Tomlinson*, New Jersey, was told that the high color of certain specimens of apples was due to their having been grown upon sandy soils. Not satisfied with this answer, he asks us to state what causes the fine color of fruits. Each variety of apples, for example, has its own distinguishing color, and this will be best developed when the tree is in the most perfect health. Whatever kind of soil best promotes a vigorous, healthful growth of the tree, will conduce to the production of the most perfect fruit. But color is largely dependent upon a full exposure to light. It is a matter of common observation that the finest apples are those borne at the ends of the branches, where they are subject to full sunlight, while fruit from the interior of the tree, where it is shaded, is lacking in color. A lack of iron in the soil may be the cause of a lack of color; but this is included under the statement that the soil should be suited to the most vigorous growth of the trees.

Tanning Sheepskin with the Wool On.—An inquiry comes to us from *F. A. Parker*, Brunswick Co., Va., about tanning sheepskin with the wool on. The following is one of the methods used by those who make a business of preparing such skins. Wash the pelts in warm water and remove all fleshy matter from the inner surface; then clean the wool with soft soap, washing well. When the pelt is perfectly free from all fatty and oily matter, apply the following mixture to the flesh side, viz: For each pelt take common salt and ground alum, one-quarter pound each, and one-half ounce borax; dissolve the whole in one quart of hot water, and when sufficiently cool to bear the hand, add rye meal to make it like thick paste, and spread the mixture on the flesh side of the pelt. Fold the pelt lengthwise and let it remain two weeks in an airy, shady place; then remove the paste from the surface, wash and dry. When nearly dry, scrape the flesh side with a crescent-shaped knife. The softness of the pelt depends much upon the amount of working it receives.

Sunflower Seeds.—*H. A. Willery*, Westmoreland Co., Pa., asks us: "Are sunflower seeds valuable? If so, what for? Would it pay to grow them?" He has heard that if "grown in miasmatic regions, they would prevent chills and fever. Is this so?" As to the last question, we have no proof that the sunflower possesses any peculiar anti-malarial properties. The seeds contain about fifteen per cent of oil, and are valuable as food for fattening poultry. They are also regarded as useful for horses with heaves, or other troubles of the respiration. These are the principal uses for the seed in this country. In Europe, especially in Southern Russia, the sunflower is grown in large quantities for the expression of oil, which is also produced to some extent in France, but much less than formerly. The diminished cultivation is on account of the rich soil required, the difficulty of preserving the crop from birds, and the small percentage of oil, which is less valuable than that produced by poppy seed. We know of no attempts at cultivating the sunflower on the large scale in this country. The plant is notably rich in potash, and consequently exhaustive of the soil. If the stems are used as fuel, the ashes should always be returned to the land.

The Planting of Evergreens.

It is one of the fortunate arrangements of Nature that the planter is not obliged to handle or set out all his trees and plants at once. When the sun shines warmly in April and the soil grows dry and friable, a nervous haste is apt to possess one, and if the snugly-packed bundles of trees have arrived, he is likely to hurry them into the ground all at once. But let him observe the orderly course of Nature. When the spring sunshine touches the sap-currents they do not all respond alike. Some are quick, some are moderate in their flow, and some are very sluggish. The gooseberry and the currant start off like minute-men; one day they are sticks, the next they are green with expanding buds. The fruit trees and grapevines do not hurry; the warm weather must become something more than a matter of hours and days, and the latter part of April will often find them firm-budded and unstarted. But it is always safe to heel them in on the north side of a building, or in a cool cellar, until ready for the planting. A deciduous tree, the buds of which have started, is always a risky thing to handle.

With evergreens it is different. They transplant better after vegetation has started and the terminal buds begin to swell. This is one reason why evergreens furnished by nurserymen with other stock early in the season, often fail. They have necessarily been dug too early, exposed perhaps to chilling or drying winds during the packing, and, though fresh and green in appearance when received by the planter, make no start after setting out, and gradually turn brown and die. It is much better to order evergreens to be sent separately from other trees and later in the season, say during May, or even June, if the season is backward and the new shoots have not made much growth. They should be fresh-dug, quick-packed and soon received. The tender point about an evergreen is its root. If once dried, it seldom recovers. It is very important, therefore, that the roots should be carefully protected from sun and wind. If possible, take a cloudy or showery day for handling evergreens. If the right conditions do not exist, keep the roots constantly wet and rolled up in matting. If there are a great many to be handled, as for hedging, keep them trenched in moist soil, removing only a few at a time.

Large and even medium-sized evergreens are awkward to plant, their thick, spreading tops preventing access to their small, matted roots. It is a good plan to rope in the lower branches closely to the trunk; then, standing in the hole—roomy holes having been previously prepared—holding the tree erect, while an assistant throws in fine soil as wanted, the planter, with his feet, carefully works it among the roots. After the spaces are filled and the roots covered several inches, the earth is tramped down and packed firmly. The close contact of earth with root is the essential condition. This work is best done in rubber boots, to avoid bruising the roots. After one tree is thus partially set, go on with the next, until all are in place, then at your leisure fill up the holes with loose, or slightly-packed earth. If reasonably moist, no water will be required, but if dry, pour in a pailful of water before the last filling. Then cover the surface with a mulch of coarse hay or straw, to remain all the first season. Once a week, when the season is dry, wet down the tree through the mulch. Remove the mulch occasionally and give the surface earth a stirring. Treated in this way, the evergreen, if healthy in itself, will soon make root, push its buds and make a moderate but thrifty growth the first season.

Hedging plants can be quickly and thoroughly set by one man walking backwards in the trench, holding the plant in place and treading down the earth on each side as it is thrown in by his helper. The plants should be well selected and bushy, and stand eighteen inches to two feet apart. They should be mulched in the same way as the larger trees and watered only when a dry season sets in, and then copiously at intervals. Sometimes the roots are so matted when dug that their setting is a good deal like that of posts. Evergreens have been successfully transplanted in August, after the new growth has matured and hardened, and planting can often be done to better advantage then than in the spring. The naturally dry condition of the ground at this season must be guarded against.

The Moonworts.

The great majority of our ferns bear their spore-cases in clusters, or fruit dots, on the back of the frond or leaf. So general is this, that many persons regard it as one of the peculiarities that distinguish ferns from other plants, and when they come across a fern-like plant, with its spore cases in separate spikes, they are puzzled; for this reason, the Moonworts are among the plants most frequently sent us to be named. The engraving shows a Moonwort belonging to both this country and Europe, though sparingly found with us. This gives the general habit of the plants: a single sterile frond, more or less divided, is borne upon the stem; the fertile frond has very narrow divisions, to which the spore cases are attached, forming an erect cluster. The genus is named *Botrychium*, a word formed from the Greek, for "a cluster of grapes," in reference to the clustered spore cases. Some of the species have the sterile frond finely divided, and exceedingly graceful. The species here figured is *B. Lunaria*, and is the one best known as Moonwort. This is confined to the vicinity of Lake Superior, but other species are found in rich woods and pastures in all parts of the country. In old times, extraordinary properties were ascribed to the Moonwort; among others, that it would make the shoes fall from the feet of horses that grazed in pastures where it grew. In the good old days when witches rode upon broomsticks, Moonwort was used as a saddle for the witches' steed.

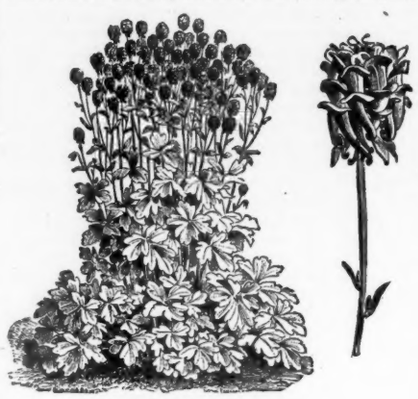
THE MOONWORT.

How to Preserve Bean Poles.

The pole bean—Horticultural, Scipio, Concord, Lima or other variety—is a necessity among almost all people of New England descent, and ought to have a place in all good gardens. To obtain the best results, the vines should be lifted into the air and sunshine, and the almost universal device to effect this, is a stout pole, eight or ten feet long, thrust into the center of the hill to the depth of a foot or more immediately before planting, or soon after the plants are above ground. The common swamp alder or white birch is often used for this purpose. Poles of that kind answer for one season, but they are a snare to the gardener who trusts to them for a second time. The wood quickly decays, and when the fall winds come, the loaded vines break down the poles, and many of the pods rot upon the ground. It pays to have the poles of durable wood and of larger size than are frequently used for this purpose. The best wood we have ever used for poles is the red cedar (*Juniperus Virginiana*), widely distributed in the Coast Counties from Maine to Florida. The wood is not only very durable, but abounds in small branches and has a rough bark; these help the young vines to climb the poles, and hold them in place when they are laden with the most abundant crops. These poles should be cut in the fall or early winter, in order to season well before they are used. The larger poles, say three inches through at the but, make a much better support than the smaller ones which are often used. Eight or nine feet is none too long, as poles of that length give the vines more air and sunshine than shorter ones, and make a larger crop. Such poles, if well cared for after the crop is gathered, will last many years and save the labor usually required where the poles have to be renewed every season. It is economy to have them sheltered under a tree or outbuilding when they are not in use. If this cannot be done, they can be placed slightly leaning against a tree or fence, where the rainfall will damage them as little as possible. If allowed to lie upon the ground where they are used, they will not last out half their days. In planting pole beans in good garden soil, the rows should run north and south, and be four feet apart, so as to give the vines the full benefit of the air and sunshine, and the hills should be four feet apart in the rows for the larger sorts, and at least three and a half feet for the smaller varieties. If the red cedar is not available, the arbor vitæ or the white cedar of the swamps will be found very good substitutes. The secret of preserving the bean poles is in keeping them dry when not in use.

The Siberian Columbine.

Nearly all of the Columbines, and notably the natives of our own country, are distinguished by their graceful habit. The flowers, upon long and slender stalks, swing with a freedom which adds greatly to their beauty. The Siberian Columbine (*Aquilegia Sibirica*), is quite unlike the others in bearing its erect flowers at the ends of the strictly upright stems and branches. This, as may be seen by the engraving, gives the plant a very different habit from the others, with which it forms a pleasing contrast. This species is from a foot to eighteen inches high, with handsome foliage. The flowers, of which we have seen only the double form in cultivation, are blue, of various shades, while the limb, the narrow, recurved portion of the spur-like petals is usually pure white, giving the flower a very lively appearance by contrast with the blue. Besides blue, there are varieties with flesh-colored flowers, and of several shades of lilac.

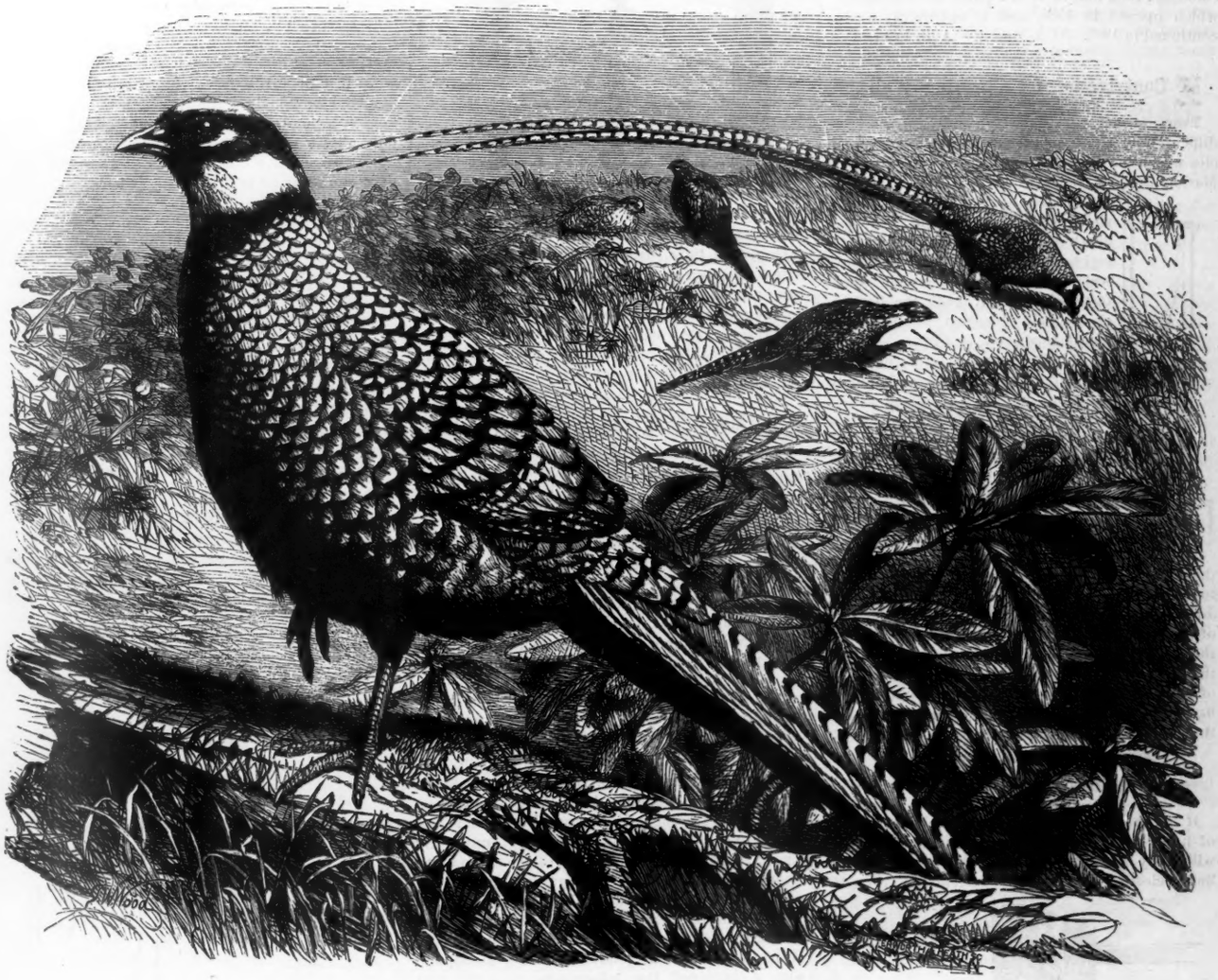


THE SIBERIAN COLUMBINE.

In order to have this species true to its type, we must propagate it by division. Like other Columbines, this will hybridize with any others that may be in the vicinity, and plants raised from seed present a curious medley. The readiness with which Columbines will hybridize, probably through the agency of insects, is most remarkable. When we first had the lovely Rocky Mountain Columbine (*A. cærulea*), in order to secure pure seed, we placed the plants at a great distance from the other Columbines in the garden. When the plants from the seeds thus grown came into flower, we had all sorts of purples, browns, reds and yellows, but not one of the charming blue of the type. With all our care, we were baffled by the insects, which brought the pollen of the Wild Columbine from plants on the neighboring hillside, and gave us an interesting collection of beautiful, but unwelcome hybrids.

Reeves' Pheasant.—(*Phasianus Reevesii*).

The common pheasant of Great Britain is a striking illustration of the complete naturalization of an animal in a country not its own. The pheasant was introduced into the British Isles from its home in the south of Europe some time in the thirteenth century. The pheasants are distinguished from the other gallinaceous birds by the length of the tail-feathers, and the roof-like manner in which they are placed. Since the common pheasant was introduced into England, other species have been brought from other countries and placed with them. The result has been that while the newly introduced species have often remained distinct, there have been numerous hybrids produced. The mountainous portions of India and China are the home of the most beautiful pheasants, and explorers continue to discover species new to science, and to bird fanciers. Reeves' Pheasant comes from the mountains of northern China, and exceeds all the others in the development of its tail; the feathers in the male birds sometimes reach the length of six feet. The general plumage of the bird is black and white, arranged in alternate markings and presents a most attractive appearance. The engraving shows the body plumage. To represent the tail in the same proportion, would require a page over three feet across, hence a full-length portrait on a much smaller scale is given in the background. However beautiful such feathers may be, they must be extremely inconvenient to the bird obliged to wear them. The true pheasants are natives of Asiatic countries, and belong to the genus *Phasianus*. We have no true pheasants in this country, although our grouse or partridge, belonging to a different order, is called pheasant in some localities, especially in the Southern States.



REEVES' PHEASANT.—(*Phasianus Reevesii.*)

Engraved after Tegetmeier for the American Agriculturist.

A Vine With a History.

In looking over the advertisements in a recent number of "The Garden," published in London, Eng., I noticed the following: "*Apios tuberosa* or Tuberous-rooted Wistaria. A beautiful, hardy climber, growing ten to fifteen feet, and much resembling the common Wistaria in both foliage and flower. Its blossoms are rich purple and have a delicious violet fragrance." The above is a fair and brief description of a wild climbing plant, found plentifully in nearly all of our swamps and low grounds from Maine to Florida, and westward beyond the Mississippi river. It has several local names, but the most familiar are "Ground-nut" and "Wild Bean." The newer name of "Tuberous-rooted Wistaria" was probably bestowed to attract the attention of purchasers in England. The flowers are small, pea-shaped, but can scarcely be called "rich purple," for they are really a dull, brownish purple, and not very showy, although quite fragrant. It is hence a very pretty vine and worth cultivating, especially in very moist situations. The subterranean, root-like shoots bear several edible farinaceous tubers which sometimes are two inches in diameter and three in length. These tubers are not produced at the ends of the shoots, as usual with the common potato, but a number, or string of them, a few inches apart, are scattered along the entire length. Few attempts have been made to improve this native tuber-bearing plant, but it is supposed to have been used as food by certain Indian tribes long before the discovery of America by Europeans; and I think that there can scarcely be a doubt that this was the plant called "Openawk," which Sir Walter Raleigh's colonists found among the Indians in Virginia, instead of the potato, as most historians have, all along, asserted. It is certainly very pleasant to give great credit to noted persons for their noble deeds and discoveries, and Sir Walter Raleigh's name has been so long associated with the introduction of the potato into Great Britain that it may seem to be rather late in the day to dispel the illusion; still there is not a scrap of history to prove that Raleigh ever saw a potato, although he may have been acquainted with this tuber, and even cultivated it in his garden, as is often asserted. Sir Walter Raleigh was never in America, but in 1584 he sent out colonists under the authority of his patent, granted by Queen Elizabeth, "for discovering and planting new countries," etc. In one of the ships which sailed in 1585, there was a mathematician named Thomas Herriot, who made a written report to his employers, giving the nature and produce of the soil of the country examined. In this account, under the article of roots, he describes a plant called "Openawk." These roots, says Herriot, "are round, some as large as a walnut, others much larger; they grow in damp soil,

many hanging together as if fixed on ropes; they are good food, either boiled or roasted." Now as we know that the ground-nut grows wild in "damp soil," and in the locality where Herriot wrote his brief description, and that the tubers are produced "many hanging together as if fixed on ropes," and that they are "good food, either boiled or roasted," it is quite within the range of well-known facts to conclude that it was the *Apios tuberosa* which Herriot described, and not *Solanum tuberosum*, as has been claimed by hundreds of agricultural writers. If I am right in this matter of identifying the plant which interested Sir Walter Raleigh's colonists, then indeed it is a plant with a history, which opened in 1585, and is apparently to be continued in 1885. A. S. FULLER.

A Contrivance for Cleaning Wells.

Every farmer who has open wells, knows how difficult and tiresome a task it is to extricate articles which have fallen into them. Mr. W. Hooper, Marion County, Iowa, gives us a sketch of the contrivance he uses for this purpose, which we herewith present. Find the depth of the well and cut off as many eight or ten-foot lengths, four inches wide, of inch boards, as will, when fastened together, reach the bottom of the well. Sharpen the end of one length to a point, as *a* in the engraving; bolt or nail a cross-piece *b*, three or four inches above the point *a*, making one side a little longer than the other, and about three inches shorter than the radius of the well. Fasten upon the cross-piece three pieces of chain, each about ten inches long, at equal distances from each other. Make double hooks out of one-eighth inch wire, or old bucket bails; sharpen the ends and attach them to the chains. Bolt the lengths of boards together loosely; let the cross-piece and hooks down into the well, tightening the bolt at the end of each length as it passes, until the point reaches the bottom. Now turn the contrivance, causing the hooks to describe several circles at the bottom of the well. The article sought for will probably be caught by the hooks, besides a good many other things not looked for will perhaps be brought up.

Self-closing and Other Gates.

If all the small gates were self-closing, a deal of unnecessary trouble would be avoided. Stock will rarely attempt to push a gate open when they find it closed, even if it is not fastened. Every self-closing gate should be provided with a drop or spring catch, a suitable bevel for it to strike against and notch to hold it. Gates opening into the garden or out upon the street, should be so hung that they will swing either way. We give a sketch of a hinge and slide for such a gate. In opening the gate either way, the arm of the upper hinge slides upon the iron bar, raising the gate a little as it swings around. When loosed, it naturally slides down without help, and closes by its own weight.

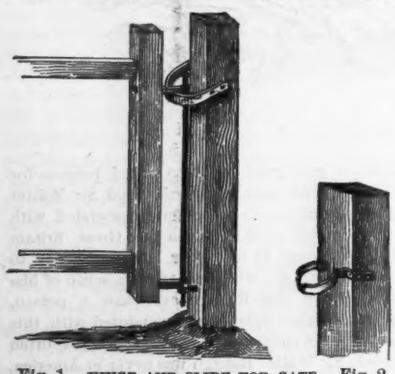


Fig. 1. HINGE AND SLIDE FOR GATE. Fig. 2.

Figure 2 shows another form of the iron slide suitable for a wide gate post, and more ornamental than the plain slide in figure 1. We also give a sketch of a light, strong gate made of wood and wire. The top wire is barbed to prevent stock from pressing against it, and beaux and belles from hanging over it. The bottom wires are also barbed to prevent cats, dogs and fowls from creeping under. This gate is cheap, may be easily constructed, and is suitable for either front or back yard.

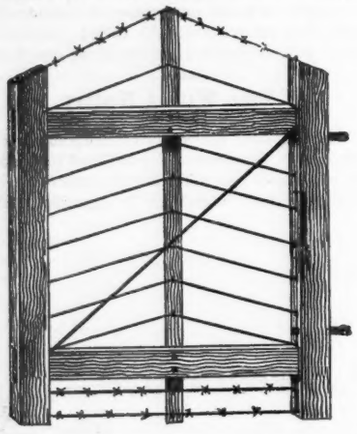


Fig. 3.—CONVENIENT GATE.

A Farmer's Daughter on Raising Calves.

We are always glad of anything that indicates that boys and girls are interested in what takes place on the farm. The letter below is from a farmer's daughter in Goodhue County, Minn., who chooses to give the name "Gretchen," instead of her own—Anna. When our correspondents prefer that their real names should not be published, we always observe their wishes. "Gretchen" has already learned that there is much that is attractive among the common things of the farm, and has early learned to use her eyes. She writes: "We are proud of our thrifty calves. They are mostly short-horns, or as Phil facetiously says, 'Will be, when their horns grow.' Father has undertaken to raise more calves than our supply of milk would warrant, but gives them hay-tea with the milk, and finds that they grow quite as well and keep as fat as when fed on milk alone. Aunt Polly G. taught us that way of feeding. Mother and I stopped at her house one day to escape a shower. Aunt Polly knows more than half the rest of the community about rearing live stock and poultry. Her calves, pigs and chickens always take premiums at the agricultural fair. She is also noted for her boxes of honey, golden rolls of butter and cream cheese. A large pot filled with hay was on the stove, and she volunteered the information that she was making 'tea' for her calves, and described it thus: 'I fill the pot with hay, crammed down; cover it with cold water; when it boils, pour off the tea, turn over the hay, cover it with cold water again, boil, pour off and throw the hay away, for all the strength is out of it. Timothy hay is best. I mix as much milk with it as I can spare. There is no danger of giving them too much of this tea, as you know there is with milk alone.'—'Don't you give them anything else, Aunt Polly?' asked mother. —'Oh yes, child! They have all the oats they can eat; nothing builds up the bone and muscle of young calves like oats.'

"We are now profiting by Aunt Polly's experience, and raising calves on a half allowance of milk, but with plenty of hay-tea and oats. They have warm quarters in the basement of the barn, on the south side, where the sun shines in all day. Father says sunlight is in a large measure essential to their health and growth. Ole, our Norwegian hired man, fills their pen with clean, fresh straw every day, and keeps them supplied with oats, hay and corn fodder. They are especially fond of the fodder. When they see Ole coming with a basket of oats, or hear the rustle of the fodder, they all crowd to the side of the pen, reach their heads over and run out their tongues in anticipation of the good things he is bringing them. 'Daisy' tips her head coquettishly to one side, shaking her tiny horns impatiently. 'Nora's' beautiful eyes gleam like twin stars, but she only gives a low, plaintive growl as the more importunate ones shove her back. A study of their ways shows that calves differ one from another in their dispositions, almost as much as do girls. Among them you will find those who are eager, greedy and impatient, and others who are gentle, unselfish and patient. Sister Olive and I find some new characteristic every time we watch them. Phil's especial pet is a handsome Jersey, with the brightest, most intelligent eyes, graceful limbs, dainty nose and tiny knobs of horns! Phil carries her a pail of milk, with bits of bread broken into it, every morning before he goes to school, and the same in the evening. He only allows Ole to feed her while he is away; otherwise he has all the care of her, and right well does she repay all this devotion by her beauty and loving, gentle ways.

"The straw in the stacks has become packed so closely that Ole found it difficult to get it out, so he went to the woods and cut a hook, such as he had used in the 'Old Country.' The accompanying sketch will show what it is like. It is made of a straight hardwood sapling of a convenient size to handle, about four feet long, and cut just below a branch, which makes the hook. The points *a* and *b* are well sharpened. This, when thrust into the straw and drawn out, brings a bunch with it."

Preparing Straw for Fuel.

Those whose principal fuel is straw, find its use vastly more convenient, and the fuel more lasting, if it is first twisted hard in the form of a rope, and afterwards made into rolls, or hanks, of a size suited to the stove. Mr. Chas. Irle, St. Croix Co., Wis., sends us sketches and a description of a straw-twister, which has long been in use in Westphalia, Prussia. A board of hard wood, half an inch thick, four and a half inches wide and five feet long, is shaped as in figure 1, and has an inch hole in the centre. A piece of the same stuff, five inches square, also with an inch hole (*a*, figures 1 and 2), is attached to the large piece by means of long wooden pins, and stands three inches from it, the holes in the two exactly corresponding. A shaft of hard wood, *b*, figure 2, is square at the end, where the crank *c*, is attached, and round where it passes through the two holes. This shaft is held in place by the pins, *d*, *d*, which should be

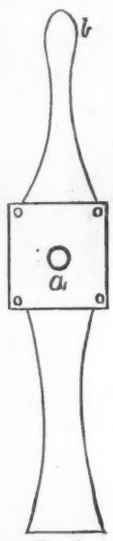


Fig. 1.

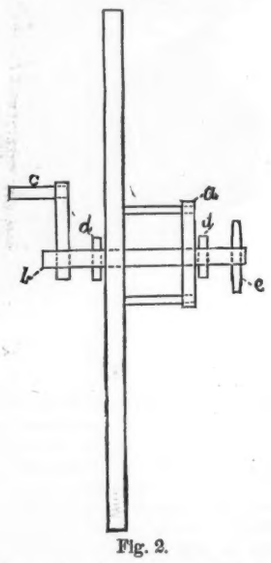
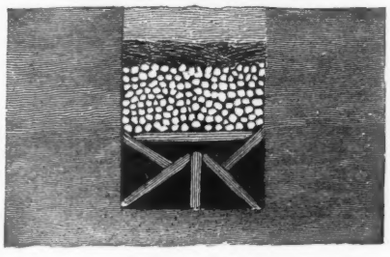


Fig. 2.

so set as to allow it to turn freely. Another wooden pin, *e*, passes through the shaft and projects an inch and a half on each side. In making the rope, two men are required. The straw having been slightly moistened by sprinkling from a watering can, one takes a bunch of it, and fastens it to the pin *e*. The other operator takes the machine with his left hand, at *b*, figure 1, and with the lower end against his foot, turns the crank; he gradually moves away from the other, pushing the machine along with his foot, while keeping the crank in motion, and the other supplies straw as required. The latter sits upon a low stool, and his right hand should be protected by a stout leather glove or a piece of leather. When the rope is about a hundred feet long, or it becomes difficult to turn the crank, it is rolled into a ball, and a new one begun. The rope is finally made into balls of convenient size.

How to Make a Stone Drain.

Mr. C. E. Y., of Montour County, Pa., sends us a sketch of a stone drain which he says has been in use on his own farm for thirty years. Where



A STONE DRAIN.

stones suitable for this purpose are easily obtainable, it may be a good method. He describes the manner of laying as follows: Dig a ditch two and one-half or three feet deep, making it from ten to fourteen inches wide at the bottom. Begin by setting a flat stone upright in the center of the ditch; then place two stones, one on each side of, and forming angles with the center stone. Next place two more stones at right angles to the second pair, as seen in the engraving; lastly lay a stone flat across the top. Now fill up the ditch with small stones until within fourteen inches of the surface. Finally scatter straw upon the small stones to prevent the soil from working down among them, and cover them over with earth. The cost of building such a drain, aside from hauling the stones, is seventy-five cents per rod.

A Home-Made Horse-Power.

The worst disposition which can be made of a worn-out farm machine of any kind, is to lay it up by the fence in the dooryard or barnyard, to be an eye-sore for years, and a possible source of danger to domestic animals, or even to persons passing hastily or carelessly near it. The better plan is to take the machine to pieces, set aside any unsound or broken wood for fuel, sell whatever iron is not likely to be useful in its present shape, and carefully store away in a suitable place the remaining parts, whether of wood or iron, particularly bolts, gearing, etc. With a little ingenuity, and perhaps a slight outlay of money, wheels and shafts from disabled reapers, mowers, or other machines may be put together to form a light horse-power, which will be found very serviceable in driving feed-cutter, corn-sheller, or farm-mill. In the construction of a horse-power, certain general principles must be kept in mind, otherwise failure, more or less complete, will be the result. The different parts must be sufficiently strong to bear the strain to which they will be subjected; the bearings need to be true, and the whole so securely braced and held together, that any slipping of cogs will be impossible. The rate of speed must be from seventy-two to one hundred and sixty revolutions of the cutting-box shaft for every one of the horse, the first being rather low for a six-foot, and the second rather high for an eight-foot sweep. Since some portion of the force employed is always lost through friction, the fewer wheels by which the required speed and direction are secured, the better. Hard-wood boxes are cheaper and more easily adjusted than those made of metal, and, if they are kept properly greased, last, perhaps, quite as long.

The writer has a portable power, which he made about ten years ago, by taking a bevel-gearing from an old, discarded trick-machine, a pair of spur-wheels from an ancient Manny reaper, two or three shafts and a band-wheel from other sources—all odds and ends picked up cheaply here and there—arranging them to suit the purpose, and fitting all but the band wheel and one shaft in a stout frame. The odd shaft extends from the end of the frame some distance, and carries the band-wheel at its further end, above which a feed-cutter stands on a loft, and is run by a belt. From a pulley on the same shaft, power is conveyed to a grindstone and corn-sheller, which require a much lower rate of speed than the cutter. Owing to some of the applications made, the horse-power has been practically converted from a portable to a stationary one; but with very little trouble and no expense, it can be taken from its present position and set up out of doors or it may be conveyed to any place where it may be desired to employ it. The crown wheel has fifty-four cogs, its pinion, eighteen; the spur-wheel has seventy-two cogs, its pinions, fifteen; the band-wheel is thirty-six inches in diameter, and the pulleys on the cutting-box, six inches. The number of revolutions of the cutter-shaft, to one of the horse is, therefore, eighty-six and two-fifths. A six inch leather belt will seldom or never slip; a four inch belt is quite too light. Two horses attached to this power, will cut corn-stalks very rapidly. The crown-wheel has a tendency to rise and allow the cogs to slip. It must be kept down by friction wheels placed above the rim, or by a collar on the axle working against the underside of the upper cross-piece, which, in turn, must be kept in place by a bolt or rod at each end, running up through the bed-piece, and secured at the top by means of a broad washer and stout nut.

Improved Slide Gate.

The old style slide gate is an unwieldy contrivance, and the only excuse for its use is its simplicity and cheapness. Numerous devices have been invented and patented to make it slide easier and swing lighter, but their cost has effectually prevented them from coming into general use, and the old gate still requires the same amount of tugging and heaving to open and close it. Sometime ago I invented a simple and cheap attachment which has given good satisfaction and made the old slide gate nearly as easy to handle as the best patent hinge and balance affair.

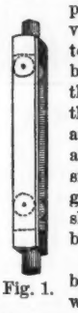


Fig. 1.

Figure 1 shows the attachment. The blocks at top and bottom are hard wood, one inch and a quarter thick. The two boards should also be of hard wood. Between the boards are one or two small iron or hard wood wheels, turning upon half inch bolts, which pass through both boards. The

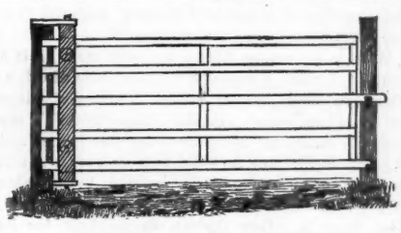


Fig. 2.—THE GATE COMPLETE.

bars of the gate run on these wheels. The gate, complete, with attachment, is shown in figure 2, the gate being closed. To open the gate, run it back nearly to the middle bar, then swing open. As the attachment turns with the gate, the lower pivot should be greased occasionally. We always fasten a barbed wire along the upper edge of the top bar, to prevent stock from reaching over and bearing down on the gate. Where hogs are enclosed, it is advisable to fasten a barbed wire along the lower edge of the bottom bar, as it keeps small pigs from passing under, and effectually prevents large ones from lifting the gate up or trying to root under.

A Movable Chicken Coop.

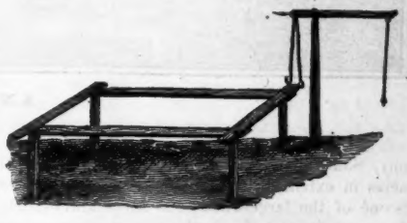
The description of a convenient poultry house in the February number of the *American Agriculturist*, reminded me of a plan that may interest many who raise chickens as a business, and those

A MOVABLE CHICKEN COOP.

also who desire cleanliness in the coops while the chicks are small. The device is also a good one for those who buy their chickens and keep them cooped up until they are wanted for use. The two sides of the coop are made of boards, twelve inches wide and of the desired length. The top is covered with plastering-laths, four feet long, with a door in the center, so that the chickens may be caught when they are wanted. With a cage thus made, small chicks can get out at the ends. The cage can be set on the grass, and moved its length or width every day or two, so that the inmates may have a fresh and clean home often. The rains will wash the grass where the cage has once stood, and it can be moved back over the same track, after the end of the plot of grass that you care to let a coop set on is reached. E. B. W.

Jack for Wagon Box.

An easy method of removing a wagon box is shown in the engraving. A platform to receive the box is made by driving stout stakes into the ground and nailing cross pieces to them. The platform should be as high as the top of the wagon standards. The lifter is made by taking a stout piece of timber which will reach two feet above the wagon box. The top of this is rounded, and a



JACK FOR WAGON BOX.

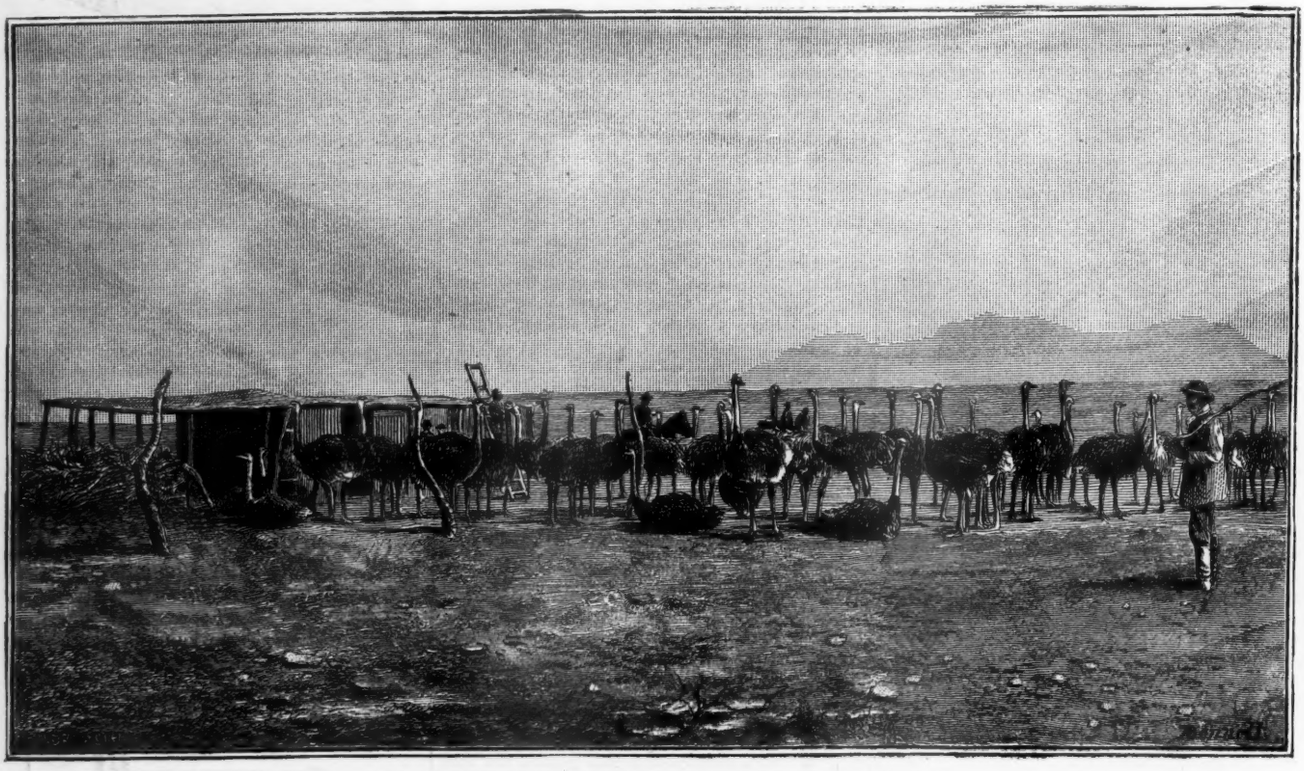
pin passes upward through a slot in the lever. Two chains, provided with hooks, are fastened to the short end of the lever, and a rope to the other. One arm of the lever is three feet long, and the other nine feet. The wagon is driven close against the side of the platform. The lifter is placed as shown in the engraving, three feet behind the wagon and on a line midway between it and the platform. The hooks on the end of the chains are caught under the box, or the rod which passes through the end gate, and by pulling on the rope the box is easily lifted out and swung around on the platform. Lift the front end over. The jack can be used to return the box to the wagon. The pieces need not be large, and when made of seasoned wood the jack is easily handled.

SHE-ASSES carry their foals about a year and twelve or fifteen days—often longer. Mares, usually from eleven to twelve months, and sometimes longer. A mule foal is not carried by the mare longer than another, that is, from 340 to 350 days.

Ostrich Farming in South Africa.

The former rude way of procuring ostrich feathers, by hunting and killing the bird, threatened to exterminate the ostrich, and it is a matter of surprise that its domestication was not undertaken much earlier than it was. In 1864, Mr. L. von Maltitz gave to the Agricultural Society of Cape Town, South Africa, an account of his experiment with seventeen ostriches. His results encouraged others, and ostrich farming soon became an established industry in South Africa. Ostrich farming has been followed to a limited extent in South America, and it has been commenced in Southern California. There are vast tracts on our southern border that might be utilized for this industry, should no unexpected obstacle present itself. As that country is the home of the Cactus Family, an abundance of ostrich food is already provided.

About nine miles from Graaf-Reinet, Cape Colony, South Africa, is a farm, thirteen thousand acres in extent, belonging to Mr. Charlwood, who is one of the largest and most successful ostrich-farmers in the Colony. On this farm there are no less than fifty-six pairs of breeding ostriches. These are camped off, each pair being kept in a camp of about twelve acres, inclosed by wire fencing, and covering, in all, about six hundred and fifty acres. Besides the breeding birds, he has about two hundred which are kept for plucking, and a number of chickens. Breeding birds are worth up to two hundred and fifty dollars per pair, plucking birds about fifty dollars each, and chickens from the shell are valued at seven dollars and a half each. The market value of the feathers from a full grown ostrich for a year, averages about thirty-two dollars. This will give some idea of the large revenue Mr. Charlwood receives from his ostriches. The farm on which Mr. Charlwood keeps the ostriches is so dry that not so much as cabbage will grow upon it, and the ostriches are fed, in times of drouth, on a species of Cactus, known as the prickly pear. This is cut by a machine made for the purpose in America. At the present time, Mr. Charlwood has about one hundred and fifty chickens, which are taken from the nests as soon as hatched and fed by hand with green food which has to be brought from a village some miles away. Mr. Charlwood, in feeding the birds, uses tons of bones, limestone, etc., and employs a small army of native servants. The breeding birds must be supplied with water and food daily, which means that sixty-five troughs of water, dotted over six hundred and fifty acres of ground, have to be filled, and each camp supplied with cut up prickly pears and other food. The water is hauled from a dam some miles away from the camps. The plucking birds are herded like sheep, and roam all over the farm. The engraving of a group of plucking ostriches, is from a photograph taken for the *American Agriculturist*, and forwarded us by Mr. E. A. Reed, one of our subscribers, residing at Graaf-Reinet, Cape Colony.



AN OSTRICH FARM IN SOUTH AFRICA.

Drawn and Engraved for the American Agriculturist.

A Compost Heap in New Zealand.

[The *American Agriculturist* has a very large number of readers in both New Zealand and Australia, who find its teachings much better suited to their conditions than are those of the papers of the mother country. Cultivators in those colonies no doubt have much in their experience that would be useful to their fellow workers here, and we hope that many will follow the example of J. H. E., of Dunedin, and make their methods known. His manner of making a compost heap, as described below, is not claimed to be new, but the practice is new to many, especially in this country. One who follows the directions here given, will be surprised at the quantity of valuable fertilizing material that has heretofore been allowed to go to waste.—ED.]

What is a compost heap? Properly made, it is a heap of manure, a repository of all kinds of otherwise obnoxious matter, which it converts into harmless and most valuable plant-food. I say properly made, for there are heaps and heaps, and it is rare to find one so built that its contents will decay well, or one not surrounded by valuable liquid which is too often allowed to run to waste. The heap is often thrown up anyhow for its materials to dry instead of rot, and much of its value is lost in that way. To make a proper compost heap there must be a fair proportion of stable manure. Having that at command, first dig out an oblong trench in a convenient stituation. It may be eight by twelve feet for a garden, and twice or three times the size for a field. Throw out all the black soil, down to the clay, upon one side, leaving the other clear for wheeling or carting alongside. Commence with a layer of coarse stable dung, about six inches thick, spreading it evenly over the bottom. Then build up, layer by layer, evenly and flat, with the clearings of hedgerows, ditches and grassy walks, weeds of all kinds (unless going to seed, when they should be burnt), lawn mowings, leaves, and pea or bean stalks, etc., in fact, anything which will decay. Always shake out the stable manure and green stuff, to form an even layer, never leaving so much as a barrowful in one spot. Build up the sides as plumb as the walls of a house. Between every three or four layers of manure and green stuff throw a sprinkling of the earth taken out, to prevent heating too much, or a dressing of ashes, if at hand. Deposit here all the kitchen or house waste (old boots or tin cans excepted), and the droppings from the fowl-house. Break up any lumps in the hen manure, or better still, throw dry earth under the roosts. After every layer of stable dung, or green stuff, tread it down well, and so go on, adding layer by layer, but never more than four or five inches of any one kind. Should there be rather more stable dung than other materials, throw over more soil, which will absorb the moisture and assist in the decomposition. Scratch the sides down with a fork, leaving it as neat as a stack, but with a flat top, and when about four feet high, cover all with a layer of three or four inches of soil to keep in the ammonia. After the heap has been allowed to heat for a week or so, throw over it the liquid waste from the house, etc., and if any liquid should run from the heap, dig a hole at the lowest corner to catch it, and throw it back over the top. Of course, if pigs and cows are kept, the mixture will be all the better. In about three or four months, the whole will be found in prime condition for any kind of crop. A heap of this kind should always be under way, in order to dispose of all waste or decaying matter, allowing the garden and surroundings to be kept in much better order. Whenever the heap gets about four feet high, top off with a layer of soil and start another. Method makes money.

Trees, Useful and Ornamental.

Mr. A. S. Fuller's ripe experience in arboriculture has proved of invaluable aid and assistance to the readers of the *American Agriculturist* in both

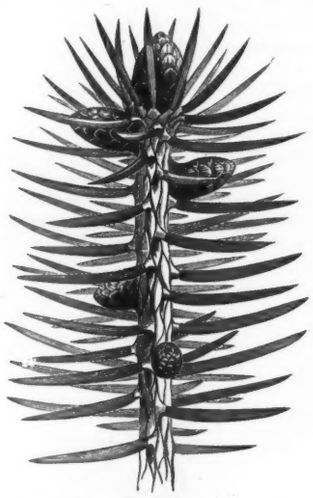


Fig. 1.—BRANCHLET OF TIGER'S TAIL SPRUCE.

hemispheres. For very many years he was engaged in qualifying himself for the volume "Practical Forestry," which we recently published. In early life he sowed the seeds of all the kinds of forest trees he could procure, merely for his own instruction. This, and his later practice as a nurseryman, allow him to speak of the propagation of trees from his own experience, and give that portion of the work a thoroughly practical character. The title, "Practical Forestry," does not convey an idea of the full scope of the work, which, according to the subtitle, gives "a description and the botanical and popular names of all the trees indigenous to the United States, both evergreen and deciduous."

This is the only work, so far as we are aware, that brings together all our native trees, and will prove a great aid to planters in presenting the available materials in a compact form, with sufficient description to allow them to judge of their value. Besides the native trees, a large number of foreign species are described; those which have proved to be of value in this country, as well as the newer ones that promise to be useful. Intending planters will find the descriptions of the newer foreign trees a great help, as they have heretofore been scattered in numerous volumes, only to be found in large libraries. To give an idea of the popular character of the descriptions, and at the same time to bring to notice two trees that promise to be valuable here, we quote his description of

Fig. 2.—CONE OF TIGER'S TAIL SPRUCE.

THE TIGER'S TAIL SPRUCE (*Picea polita*).—A native of the mountains of Japan, is very distinct, with strong, rigid, sharp-pointed leaves, somewhat sickle-shape, on sturdy, strong branchlets, with very prominent buds, as shown in figure 1. Cones four or five inches long, of the shape shown in figure 2. It is a rather slow-growing species, but of a very sturdy habit. My oldest specimen, ten years planted, is only about eight feet high. This spruce would make an excellent hedge plant, owing to its sharp-pointed, rigid leaves.

GOLDEN LARCH (*Larix Kæmpferi*).—A very distinct species from China, and by some botanical authorities placed in a genus by itself, under the name of *Pseudolarix*, or False Larch. It inhabits Northeastern China, at elevations of about three thousand feet above the sea, where it grows to a hight of a hundred and twenty feet, with a stem three feet in diameter. The leaves grow in bundles, like the common Larch, but one to two inches long, and the cones nearly three inches long, with thick, woody, somewhat divergent scales. The leaves in spring are of a pale, pea-green color, becoming darker in summer, and changing to a bright golden color in autumn. A catkin bearing twig is shown in figure 3, the leaves somewhat reduced in size. This is as yet a rather scarce tree, in both European and American gardens, although it was introduced into England in 1852, and soon after into the United States, but owing to the difficulty of procuring seed, and propagating by other means, the number produced has been quite limited.

NUT-BEARING TREES.

The time is not far distant when tree-planters will take the fruit of forest trees into consideration in making selections for planting. Chestnut and Hickories, and Pecan and English Walnut in

Fig. 3.—GOLDEN LARCH.

southern localities, should pay a good rent upon the land for a number of years before they are converted into timber. Most boys are aware that some hickory and chestnut trees produce nuts larger, sweeter, thinner shelled, or in some particular superior to the average. The variation in the nuts is sometimes strongly marked. In the selection of nuts for planting, some care, and even expense devoted to securing the choicest obtainable varieties are likely to be rewarded when the trees come into bearing.

One of the most distinct and valuable varieties that has ever been brought to our notice is the "Hales' Paper Shell Hickory Nut." We first became acquainted with this variety some fifteen years ago, and the next season described it under the above name. It is a variety of the common Shell-bark Hickory, and the tree is now growing with several others of the same species, near the Saddle River, on the farm of Mr. H. Hales, about two miles east of Ridgewood, Bergen County, N. J. The tree is a large one, and produces a fair crop of

Fig. 4.—HALES' PAPER SHELL HICKORY NUT.

nuts annually. This handsome variety is well represented in the accompanying illustration, figure 4, showing a side view, natural size, and figure 5, a cross-section, showing thickness of the kernel, and the extreme thinness of the shell. The general appearance of this nut is quite similar to some of the varieties of the English walnut, the surface being broken up into small depressions, instead of angles and corrugations as usually seen in the large varieties of the Shell-barks.

Fig. 5.—CROSS-SECTION OF FIGURE 4.

But variation is not always in the direction of improvement, as is shown in figure 6. This nut is from a large tree in Connecticut which annually bears large crops of nuts, all of which are deformed in a similar manner, one of the seed-leaves (cotyledons) of the embryo being suppressed.

Fig. 6. DEFORMED HICKORY NUT.

THE ENGLISH WALNUT OR MADEIRA NUT (*Juglans regia*). — In general appearance this Royal Walnut of the East resembles our American Butternut, but the trees grow to even a larger size. The wood is quite valuable, and highly prized in Europe for cabinet work and similar uses. But after the discovery of America, and the introduction from here of Black Walnut, which is its superior for similar purposes, its value decreased in consequence of competition, but even now the wood is much sought after and commands a large price. The success of this tree in the United States has been greatest in the Middle and Southern States, still there are many quite old and large trees in the suburbs of New York City, some of which seldom fail to produce a good crop of nuts. In years past there has been no especial attention given to the selection of varieties adapted to the climate of our Northern States, hence there have been more failures than successes in attempts to cultivate this Eastern nut; but with proper care in selecting seedlings from the cooler parts of Europe, and propagating from well-tested varieties that do succeed here, I can see no good reason why this nut should not be raised in abundance in most of our Northern States. Recently a dwarf French variety, called the "Præparturiens," has been introduced and largely propagated by our nurserymen, as it is said to come into bearing when quite young. There are a very large number of varieties cultivated in the French and other European nurseries, the nuts varying greatly in size and form, as shown in the

7.—SMALL-FRUITED WALNUT.

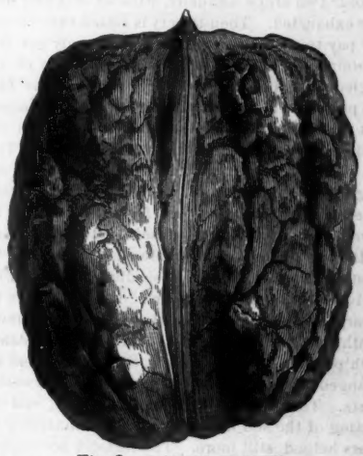


Fig. 8.—GIBBOUS WALNUT.

accompanying illustrations, which we have selected merely to give the reader an idea of the extremes of variations to be found among the nuts. The Small-fruited Walnut (*Juglans regia microcarpa*),

shown in figure 7, is only about one-half an inch in diameter, but the kernel is sweet, and of a most delicate flavor and texture. This is probably the smallest variety known, while the Gibbous Walnut (*J. regia gibbosa*), figure 8, is quite the opposite, or the largest, and while it has a rather thick shell, the kernel is of excellent quality and easily extracted. The Barthere Walnut (*J. regia Barthereana*), figure 9, is remarkable for its extreme length. Its shell is quite thin, and the flavor of the kernel is excellent. Between these extremes of variation there are scores of others that are quite distinct, and may be found described in the catalogues of European nurserymen. There is also a marked difference in the habit of growth of the different varieties, some being very tall trees, and others

Fig. 9.—BARTHERE WALNUT.

Fig. 10.—CUT-LEAVED WALNUT.

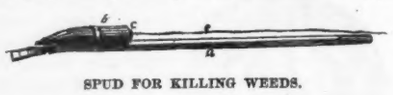
dwarfish. There are also broad-leaved and narrow-leaved varieties, and among the latter the pretty Cut-leaved Walnut (*J. r. laciniata*), figure 10.

Manuring Old Orchards.

One of the popular fallacies that still lingers in the rural districts, is that mature orchards do not need fertilizers. Farmers may be painstaking in the planting, and in cultivating the orchard for a few years, until it comes into bearing, but, as a rule, after that, it is neglected, and not infrequently either pastured or mowed, and the soil is compelled to bear two crops annually, without manure, until it is exhausted. Then the cry is raised that "it does not pay to plant orchards, at best we only get fruit in abundance every other year." The folly of this neglect is demonstrated every year, and the facts are published abundantly in the agricultural papers, but unfortunately these journals have quite a limited circulation, even in the farming towns. They are numbered by tens and twenties, where they ought to be by hundreds. On the old homestead, where the writer ate apples from the tree and the barrel, raw, cooked and preserved the year round in the age of homespun, there was an old tree famous for its early apples, a seedling, and an inveterate bearer in alternate years. It happened in the enlargement of the garden, that the ground underneath this tree was plowed, manured, and planted with potatoes, and as a result, the bearing year was changed, and we had two full crops in successive years. The manure helped this result, and the rotting of the sod that had been accumulating for years helped still more. The fact did not impress the owner much, but it did impress the boy who helped to eat the apples, and turned the grindstone under the grateful shade. It is a well-known fact that pear and apple trees that stand in gardens, especially in village gardens which have liberal fertilizing and cultivation every year, bear regularly, and are seldom without fruit, except when the frost or hail destroys it. Men who make a specialty of growing fruit for market, and feed their trees abundantly, get well paid for their labor, and send apples to the city markets by the car or boat-load. The secret of their uniform success is in the fact that they feed their trees regularly, and thin out all superfluous wood, and give the orchard all needed attention. They do not steal away the food of the trees in grass or grain crops. They are content with the fruit. There is no reason why the average farmer, who has suitable land for fruit trees, should not have an abundant supply of fruit for home use, and for market. It is in the line of his business to raise crops for market, and to make the manure that is needed to produce them. It is in the line of a true economy to purchase the fertilizers that are lacking to grow maximum crops. It does not pay to grow minimum crops. Cultivate only so much land as you can fertilize and improve by cultivation. Riches increase with the depth rather than breadth of the soil turned by the plow. The orchard wants regular feeding, as much as any other crop, and fruit growers have learned that there is economy in it. It will not be very difficult for any thrifty farmer to increase his home-made fertilizers, and to supply the wants of his fruit trees. He wants a system of supply for his orchard, as he has for his wheat and cornfields. On many farms the barn cellar is still wanting, and there is no system in the making of manure under cover. A third at least of the value of the manure made from the stock kept, is wasted from the want of this protection. Then there is large waste from the want of absorbents to hold the liquid manure, and for the ammonia, the most valuable and the most volatile of the constituents of farmyard manure. To fail in the conveniences for preserving the manure that falls in the stables, the yard, the sty, the roost, the privy, the sink-drain, is to waste at the bung hole. Open the muck-mines which are to be found in almost every farming district, and keep a stock of weathered muck and peat, constantly on hand under cover, ready for the stable and the compost heap. These mines, if faithfully worked, will pay much better than the average gold mine. They have never been known to fail, on soils where manure was needed. Then leaves from the forest, and sawdust from the mills, for bedding, make valuable additions to the stores of fertilizers. Then if manures are to be purchased, we have Canada ashes, dry, and leached, available near most of our seaports and railroad depots, and the concentrated fertilizers are sold by analysis in most of our large towns. It is a safe investment to buy these manures for your orchard, if the home-made fertilizers fall short. Do not wait for the more convenient season, but invest now.

Killing Weeds on the Lawn.

For killing perennial weeds, a spud is a convenient implement with which to cut off the roots below the surface. A good spud may be made from an old carpenter's chisel of large size. This should be attached to a handle sufficiently long to allow it to be used without stooping. By thrusting this diagonally against the root, that may be cut off as far below the surface as desired. Some weeds, however, such as dandelion, plantain, etc., are not killed by merely cutting them, but need the application of some destructive liquid to make complete work. In England, oil of vitriol (sulphuric acid) is used for this purpose, but that is dangerous to handle, and must be kept in glass. Mr. J. Bartlett, of Ontario, Canada, finds that strong brine or coal-oil applied to the roots, will destroy them. He sends us a sketch of a vessel for the application of liquids, which is attached to the spud, and allows the cutting and killing to be done at one operation.



SPUD FOR KILLING WEEDS.

The engraving shows the spud, *a*, with its attachment, a tin vessel with a tapering nozzle and holding about a quart, at *b*. At *c*, is a valve, which covers a small air-hole, against which it is pressed by a spring, and which may be raised by the cord, *e*. After cutting the root, a pull of the cord will raise the valve, allow air to enter the vessel, and a small quantity of the liquid will pass out and come in contact with the root.

Lawson's Cypress.

In a considerable collection of young evergreens, none is more satisfactory, in every respect, than Lawson's Cypress (*Cupressus Lawsoniana*). The pendulous branches have a remarkable feathery grace which belongs to no other tree, while the foliage is

LAWSON'S CYPRESS.

of the deepest green. This cypress is a native of Northern California and Oregon, where it reaches the hight of one hundred feet or more. It was discovered in 1854 by Mr. William Murray, who named it in honor of the Messrs. Lawson, of Edinburgh, Scotland, to whom he sent the seeds. The tree is known on the Pacific Coast as Oregon Cedar and White Cedar, and is valued for its timber, which has a strong, fragrant odor. The wood is compact, white and very easily worked. Lawson's Cypress is remarkable for the manner in which it varies from the seed. There are more than a dozen named varieties in the catalogues, differing in habit and stature, in the depth of green of the foliage, and in the markings of white and yellow. Some of those varieties are, if possible, more beautiful than the type. In the neighborhood of New York City, this tree has proved perfectly hardy. How far north of this it can be planted with safety, we are unable to say; but it is worth while to experiment with it wherever the winters are not unusually severe. In cold localities, it should be planted in rather poor soil, in order that its growth may not be continued too late in the fall. The cones in this species are about the size of large peas, and are borne in great profusion. As an ornamental tree, it may be planted wherever evergreens are required; whether solitary or in groups. It is especially suited to cemetery planting, and in England has been employed in evergreen hedges, which are so common, and so ornamental in that country of shrubs and vines.

Grafting the Grapevine.

Numerous inquiries have been made this spring as to the method of grafting the grapevine, but too late for a reply to be given in time to be useful this season. Some of the writers propose to take wild grapevines, and use them as stocks upon which to graft desirable varieties. This would be very poor economy. An old vine of any kind is rarely worth removing, and least of all, a wild one. Such vines are poorly furnished with roots, and would make very poor stocks. If one already has an old vine of a poor variety, and wishes to graft it with a more desirable kind, he can do so by digging down and inserting the cions below the surface of the ground. The proper season for this operation is in the fall, when vegetation is at rest. If the old root is in a healthy condition, a very vigorous growth will follow. Another method of grafting is to insert the cion in a strong cane, or branch of the vine, selecting one that may be bent down, and have the union of stock and cion, with a joint or two of the cane, covered with soil. The method known as whip-grafting is employed, the cion and stock being held together by a tie, instead of wax. The grafted cane is then laid in a shallow trench, in such a manner that a bud or two of the cion will be above ground. This, it will be seen, is a combination of layering and grafting. The cion is nourished at first by the old vine, but in the course of the season, the buried portion of the cane will produce abundant roots, and in the fall may be separated from the parent plant. This operation should be performed early in spring, before there is danger of copious "bleeding," which might prevent the union. It may also be done upon the new growth, after the shoots of the season have become sufficiently matured, in this case using cions of similar new growth. This method with new wood we have not tried, but it is said to be successful. Nearly all of our hardy grapes are grown so readily from cuttings, and come into bearing so soon, that this is the usual and least troublesome manner of propagating them.

Mariposa Lilies—Butterfly Tulips, and Others.

"Beautiful grass" is the literal translation of *Calochortus*, the name of the genus which includes the plants known in California as Mariposa Lilies and Butterfly (or Mariposa, which is the Spanish for the insect), Tulips. The term "grass" has reference to the leaves, which in some species are narrow and grass-like; that they are properly called "beautiful," no one familiar with the plants will dispute. The writer well remembers the first living Mariposa Lily he ever saw. Having crossed the Colorado Desert on foot, daybreak found us at the western edge of the desert, where there was water, but in all other respects the face of the country was but a continuation of the dreary waste we had just crossed. Here we found a flower which appeared to be as much out of place as a jewel on an ash-heap. This flower was a revelation, and we recollect the mental effort required to convince ourselves that a flower of such exquisite beauty could have really been spontaneous in the midst of the barren desolation which surrounded it. There are not far from thirty species of *Calochortus* in the territory between the Rocky Mountains and the Pacific, and ranging from Mexico to British America. The plants have a solid bulb (corm), with a membranous, rarely fibrous coating. The stems grow in hight from three inches to two feet, are usually wavy and branching; the few narrow leaves are radical, with some on the stem, which are clasping. The flowers are borne at the ends of the branches, or sometimes in an umbel-like cluster. The general structure of the flowers is that of the Lily Family, to which the genus belongs, and is shown in the Lovely Calochortus (*C. venustus*), an engraving of which we have chosen to represent the genus. The three outer divisions of the flower are smaller than the others and calyx-like. The inner three, or petals, are very broad, and each with a large gland or pit near the base, which is often beautifully crested or hairy. The different

THE LOVELY CALOCHORTUS (*C. venustus*).

species present a great variety of colors—white, pale yellow, orange, blue, and different shades of purple being among them, with markings and spots of brown and other colors, making them very showy. Of course, plants so exquisitely beautiful as the Mariposa Lilies are desirable in our gardens, but from lack of a proper observance of their requirements, the attempts at their culture have not been attended by marked success. The species from the high mountains and the more northern localities, such as *C. Gunnisoni*, *C. macrocarpus*, *C. Greenii*, etc., are fairly hardy, and may be treated like ordinary hardy bulbs, planting as late as possible in autumn. If planted too early, they may start into growth before winter, and of course be killed. With *C. venustus* and other southern species, the only sure method is to cultivate them in pots, giving them the protection of a cool greenhouse or a frame. They should be potted in autumn and kept from severe freezing during the winter.

Bright Berries.

Some shrubs are so showy when in fruit, that they are worth growing for that alone. The Ramanas rose (*Rosa rugosa*), for example, is so loaded with its large, bright scarlet hips, that we should give it a place, even if it did not bear an abundance of most powerfully scented flowers. The Sweet Brier is another rose valuable for its abundance of brilliant fruits. Bright berries are most appropriate and effective in Christmas decoration, but those who would use them for this purpose, make the mistake of leaving them on the bushes until required for use. Nearly all of the brilliant fruits have their beauty diminished, if not destroyed, by severe freezing. Those who propose to employ these fruits in holiday decoration, should cut the branches while the fruit is still perfect, and set them in water in a cool place, but where they will not freeze. All that we have tried have kept in perfection by this treatment.

Atmosphere and Temperature.

The proper regulation of the atmosphere as to moisture and temperature, is one of the most important points to be observed in cultivating plants in the parlor, or window-garden. Plants will not flourish, bloom, and be healthy, in a dry, dusty atmosphere, even though the best of care otherwise may be bestowed upon them; hence it is that those who attempt to raise plants in their dwellings meet with so little success. There is an immense contrast between the atmosphere of a well regulated green-house and that of an ordinary dwelling. In the green-house, the air is moist and well tempered to the healthful growth of plants; while that of the parlor or sitting-room is invariably dry and dusty, and plants will not flourish in it as they would in the conservatory. If the dwelling be heated by coal, there is more or less gas constantly discharged into the air of the room, which is of itself enough to destroy vegetation, or make it sickly. Houses heated by steam, are better adapted to the cultivation of plants. All plants will not flourish in the common temperature of a living-room; some require a low temperature, and others need a warmer one. The following plants require a temperature of from seventy degrees to eighty degrees in the daytime, and fifty-five degrees to sixty degrees at night: begonias, coleuses, calceolarias, bouvardias, ferns (tropical), hibiscuses, poinsettias, tuberoses, heliotropes, crotons, hoyas, cactuses, all kinds, caladiums, cannas, palms, orange and lemon trees, geraniums, etc.

The following will do well in an atmosphere ranging from fifty degrees to sixty degrees by day, and forty degrees to forty-five degrees by night: camellias, azaleas, oleanders, roses, carnations, callas, ivies, abutilons, jessamines, Holland-bulbs, lily-of-the-valley, primroses, violets, verbenas, chrysanthemums, etc. Plants will flourish better in the kitchen, where the steam and moisture from cooking are constantly arising, and tempering the atmosphere, than in a dry, dusty sitting-room. Hence it is that we find "Bridget" sometimes cultivating a few plants in her kitchen window, that are envied by the mistress of the house, because they are so much finer than those in her parlor or sitting-room.

If a pan of water is set upon a stove in a room where plants are growing, it will help to materially relieve the dryness of the atmosphere. But most all kinds of house-plants will do fairly in a uniform temperature, from seventy degrees by day to fifty-five by night. Careful observation of the habits and requirements of different kinds of plants, as they come under our care, will greatly assist the cultivator, and in a short time he will be so conversant with their various habits as to know just how to properly treat each plant in his collection. Where plants requiring different methods of care and treatment can be grouped together and placed conveniently by themselves, it will be well to do so; such a plan will greatly facilitate matters, and the results will prove the advisability of carefully considering temperature and atmosphere.

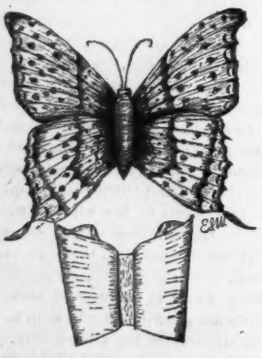
Home Adornments Made at Home.

The several articles represented in miniature in the design for "Home Adornment" are all useful, and can be made at home with very little trouble.

A FLOWER STAND, figure 1 is made of rough wood, and three wooden butter bowls of different sizes. Each bowl is nailed upon a piece of the wood, and the parts are joined together, placing the smallest at the top. The bottom stick should be a foot longer than the others, so that it can be set in the ground to that depth to hold the stand firmly. If it is not designed to be stationary, nail some pieces on the bottom to form feet, spreading them enough to answer for that purpose. Paint the bowls brown, and bore several holes in the bottom of each to afford drainage. Fill the bowls with rich, light soil, plant running vines near the edges, and set plants with bright-colored foliage or flowers in the center.

AN IVY SCREEN.—A screen of natural ivy is shown in figure 2. To make such a screen, procure a small-sized clothes horse and drive nails around the frame, about four inches apart, then run wire back and forth across it, forming a trellis for the ivy to be trained upon. Make a box of wood, three inches high, four wide and as long as the screen is wide. It is better to have a lining for the box, of tin, zinc or galvanized iron. Fasten the screen to the box and plant the ivies in it. When the screen is completely covered, it makes a very useful as well as beautiful ornament for the front piazza or elsewhere. If the screen is likely to be moved frequently, it is well to provide the box with casters.

A COMFORTABLE COUCH.—The foundation for the couch, figure 3, is made of a strong wooden box. Remove the lid and divide the box in two, by fastening the cover in it, in an upright position, to form the back. Tack sacking or unbleached cotton cloth over the open parts, which are to be the seats, and attach a caster at each corner of the bottom, when it will be ready to be upholstered.



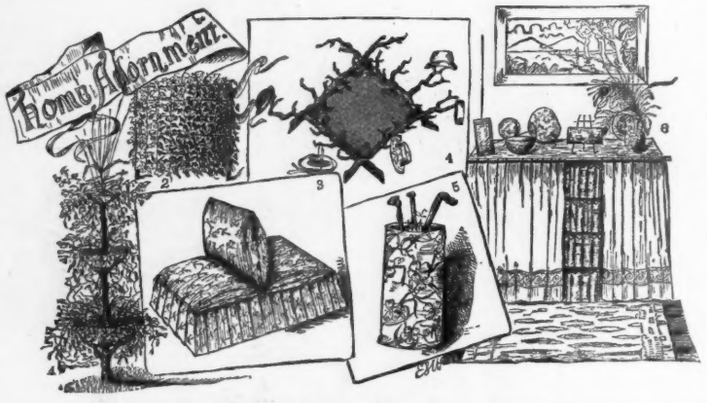
A BUTTERFLY SLIPPER CASE.

For the covering, use a pretty pattern of cretonne, make a plaiting of it for the side and ends of the box. The four pillows which are used for the seats and back, are covered with the same material. They can be filled with hair or feathers. The two pillows for the back should be overhanded together on three sides and slipped over the back. The other two are to be tacked on the seats. Attach a tassel at the upper corner of each side of the couch, and you will have an inexpensive piece of furniture.

A RUSTIC HAT RACK.—Figure 4 is designed by nature, and the material must be sought for in the woods. Select the roughest and knottiest branches to be found, and you will have what is necessary to make an artistic hat rack. Nail the pieces together to fit around an old mirror; or a new glass without a frame will answer. If a glass without a frame is used, it can be kept in place by tacking pieces of braid to the frame across the back of it.

AN UMBRELLA STAND, shown in figure 5, is made of an ordinary drain tile, to represent the more elegant ones which we see in house-furnishing stores, but this answers every purpose, and looks much like them. Paint the tile, on the inside, a delicate shade of pink, and the outside a medium shade of brown. Cut a piece of wood to fit in the bottom and glue it in. Cut out from showy cretonne the flowers and branches, and glue them around the tile, and then give it several coats of varnish.

A BOOK CASE.—The case shown in figure 6 is



designed to fill the space usually found between the chimney and the corner of the room. Make a frame to fit the space, and deep enough to hold the largest book. Provide as many shelves as are desired, it being better to have more than are needed at present, for future use. It does not look at all out of place to have every other shelf (if necessary) filled with bric-a-brac. Ebonize the frame. The curtains can be made of almost any material. Old shawls or blankets can be dyed and used to make very pretty ones. Attach a band of velveteen, of the same shade, on the bottom. Procure rings of a proper size to fit the rod. Sew them on the curtain. The rod should be a piece of old gas-pipe, ebonized; slip it through the rings, and fasten it on the book-case with a stair-rod fixture. Cut some dark red leather into strips, three inches wide, pink them on the edge, or cut the edge in points, and with brass-headed nails tack a strip on each shelf, to protect the books from dust.

A Butterfly Slipper Case.

A slipper case in the form of a butterfly can be made very handsome, if a proper taste is displayed in selecting the colors for working the designs. For the foundation, have a board sawed out in the shape seen in the engraving. Cover the board with silesia on both sides. Cut two pockets out of pasteboard, cover them with silesia, and tack them on the back. Cut a butterfly out of "wigan," large enough to fit over the pockets, and on it make the butterfly. Use bright pieces of velvet, satin or cloth, according to taste; join them with bright-colored silks, and line with some plain color. Place a row of stitching on each side of the body of the butterfly, and stuff it with cotton; then sew up the head, and fasten it on the pockets. Screw-eyes are fastened in the board to hang it by.

A Barrel for Soiled Clothes.

This barrel is intended to be used as a hamper for soiled clothes. A flour barrel will answer the best. Line the barrel on the inside with paper muslin. Remove the middle hoops and gild them, and also those on the top and bottom of the barrel. Take a piece of brown, undressed cambric, and tack it around the barrel in large plaits. Replace the hoops that were taken off to be gilded, and fasten a bunch of natural grasses on the front of the barrel, or if they are not obtainable, large flowers and leaves cut out of cretonne, and pasted on, will answer. Cover the head by plaiting a piece of the cambric around its edge, draw to the center, and fasten on a knob to be used to lift out the lid. Cover the underside of the barrel-head or lid with paper muslin, to match the lining of the barrel.

A Glimpse of Spring Fashions.

Some apparently new fashions are often heralded by the expression: "Well, that's something new under the sun," in contradiction of the old proverb: "There is nothing new," etc. We think new styles of dress, so called, are generally old ones revived. Those are brought out which best meet the advance which has been made in healthful dressing, and consequent good taste. A few years ago, a lady walking in the street in the costume worn by ladies fifty or seventy-five years previous, would have attracted a crowd about her, and provoked much merriment. Just now such a lady would pass almost unnoticed. Among some tableaux recently exhibited was one representing an ancient village choir. The ladies wore short dresses of large figured material, made with plain, full skirts, short, belted waists, large, round lace collars, and poke bonnets. All of these are seen in the present styles of dress. The advance in good sense is shown by what has been rejected in the old ways of dressing. Fifty years ago, or less, the lady who could show the smallest waist was thought to have a very stylish figure, and the writer well remembers having been asked, in her early youth, to assist a lady in drawing the waist of her dress together, as she could not make it meet alone. She still lives, and as the natural result, has been a chronic invalid for many years. Now fashion gives nature her own rights, and tight lacing is reckoned among the barbarisms of former years. Corded waists of perfect shape, for all ages, are found in all places where children's garments are a specialty. And for ladies, "Health Corsets," many of them designed by physicians, are becoming more and more popular all the time. Another fashion which we believe has passed away forevermore, is that of heavy, trained skirts, supported by

A BARREL FOR SOILED CLOTHES.

long hoop skirts of steel, making altogether a weight under which any strong man might groan.

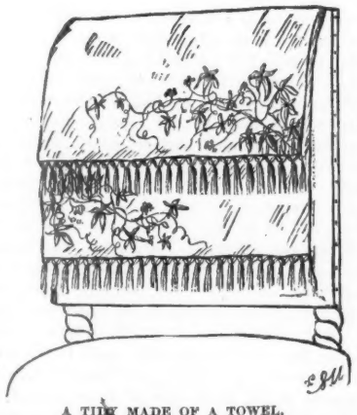
Now combination under-garments, with the short, hair-cloth skirt, the back breadth having three flounces, with an additional plaited frill to button on if needed to support a train, are all the under-dress required. Still another discarded abomination is high heels and tight shoes. Low, broad heels, and comfortable shoes, with the short, light, easy dress reformed fashion now prescribes—all these invite to brisk walks in the open air, and health and happiness are sure to follow. There

seems to be nothing very marked in the early-announced fashions for spring. Simplicity in ways of making up, and good, substantial quality in goods, are some of the principal features in those already seen. Woollen fabrics have taken the place of silks for home and street wear, and we may confidently assert that a trained silk dress, such as was commonly seen on the street a few years ago, would now be an object of ridicule. Cashmere is very popular for spring dresses for ladies and children, and can be worn all through the summer. Almost any shade of any color may be found in this fabric. These and other woollen goods are not, as formerly, combined with silk. They are made in tailor-fashion, simply stitched, or trimmed with some of the new fancy braids, or with velvet, which, it is said, is to be worn all through the summer. Velvet figures on silk or satin grounds, are among the most expensive goods, but the designs are much smaller than they have been. These are used for basques, and the front breadths or side panels of skirts. For summer silks nothing can be prettier or more useful than Surah silks. They are in all plain colors and also in changeable colors, as black and gold, blue and brown, etc. Small striped and checked silks may be had at low prices, but light wools are preferred. Nun's veiling is found in all shades for home, street and evening wear. And there is a new fabric of about the same texture called wool-crape, with a slight finish like crape. Many ladies embroider small designs on fine woollens for vest, apron front, collar and cuffs. Interlinked rings, keys, half moons, or tiny flowers with thin leaves, are among the designs used. This is a very handsome way to make up ladies' or children's woollen dresses. For children, the yoke or vest is embroidered, with belt, collar and cuffs to match. Basques and polonaises are both to be worn with vests, real or simulated. The old cut-away basque, sloping back from the top of the darts, is revived, also small jackets of dressy material, resembling the old Zouave jackets. Another old style of waist, which is very pretty for young people, is the melon waist, the puffs of which are made by taking up small seams on the inside, about an inch and a half apart, and very slightly drawing them up, then fitting the whole to a lining. Wool laces are seen in profusion for trimming wool dresses. Many skirts are tucked, wholly or partly, to the waist, and finished at the bottom with a row of broad lace. This may match the dress in color, or white or cream color may be used, if a dressy effect is desired. Broad sashes will be worn with all dresses, tied in large bows behind, made either of the dress material, or of silk, plain or watered. White will be worn by all ages, and embroideries and laces are very cheap and beautiful for trimmings.

ETHEL STONE.

Tidy Made of a Towel.

A plain white towel makes a very pretty and durable tidy for every-day use. Embroider some little



A TIDY MADE OF A TOWEL.

vine or flower on the ends of the towel, and fold it together in use as shown in the engraving.

A Home-Made Fire Shovel.

Among other uses for old tin cans is turning them into handy fire shovels, as suggested by the sketches and explanation of Mr. T. R. Potter of Blount County, Tenn. He writes as follows: Melt off the ends of two quart cans, flatten them by pressing and pounding together the seams in the middle. Turn down the corners of the upper end and a little on the front to stiffen it, as shown in

Fig. 1. A HOME-MADE FIRE SHOVEL. Fig. 2.

figure 1, then turn up the sides and finish, as shown in figure 2, by crooking the back end and inserting a hard-wood handle, flattened to slip between the corners at the upper end of the tin. Nail with large tacks, or with small, short, or broken nails.

Pretty and Useful Aprons.

The upper apron, as seen in the group of three, is made of India lawn and trimmed with white lace.

THREE PRETTY APRONS.

Have a large bunch of daisies or some other flower stamped upon one corner, and embroider it in white working-cotton. The effect is very pretty over a colored dress. The apron at the right is made of cheese cloth, which can be purchased for six cents a yard. One yard will be sufficient to make this apron. Cut a strip off of the end to make the belt; make a hem five inches deep, with a hem stitch at the top. Stamp a vine with leaves and flowers across it and embroider with silk in shades of pink and olive green in outline stitch. The pattern for stamping can be purchased for a few cents a yard and used at pleasure. Gather at the top on the belt, which is made to come around to the side and fasten under a bow with long ends and loops. A piece of ribbon of a color to match the silk is carried around the waist. The apron at the left is made of white cotton grenadine, which may be purchased at twenty-eight cents a yard. It is made perfectly square, with a hem an inch and a half wide all around it. Draw out a number of threads in three strips, as seen in the engraving, and run satin ribbon of any bright color in and out through the open places. The shirring at the top is made by running a ribbon through the upper hem. Tie the ribbon in a bow at the side.

APPLE CHEESE.—Pare and quarter a quantity of apples, stew them with a little water, a good deal of sugar, the juice and grated rind of a lemon, a few cloves, or a stick of cinnamon. When quite soft, sift through a hair-sieve; and to one quart of the strained apple add half a package of gelatine, dissolved in water. Mix well, pour into a mold, and when set, turn it out and serve with a boiled custard poured around it. Sweeten and flavor it well, on account of the insipidity of the gelatine.

Kensington Painting.

Kensington painting on velvet, although not exactly high art, is very effective for home decoration, and can be accomplished in one tenth the time of embroidery. It is, in fact, an imitation of Kensington needlework done in oil colors, the pattern being stamped the same as for embroidery. Those who desire to paint, but have never learned to draw, will appreciate this, while taste can be largely exercised in the shading. There are two methods of Kensington painting—one where a pen alone is used, and another in which pen and brush both come into play. I prefer the latter, which is the one taught in the principal art emporiums.

Imagine a spray of blossoms and leaves stamped upon plush, velvet or velveteen. Tack the material upon a board, so that it is perfectly smooth. Using a camel's hair brush, cover the flowers with a thick, even coat of white paint, leaving not a particle of the velvet visible. Then with a fine pen—Esterbrook, No. 4, is recommended—go over each petal, making regular strokes like stitches in embroidery, from the outer edge toward the center, being careful to wipe the paint from the pen between the marks. This is called stitching the flower. It must then be left until perfectly dry, when it is gone over with thin washes of the natural color of the blossom; shading the same as in painting or embroidery. The centers are put in in dots to resemble French knots, and at a short distance it is difficult to distinguish this painting from needlework. The leaves differ from the flowers, inasmuch as they are painted in at once with green, making one side of the leaf darker than the other, are veined and stitched with the pen, and are then finished, requiring no second coat. It is fascinating employment and is beautifully adapted for portieres, mantel lambrequins and wall banners.

A. C. SAGE.

A Bag for Travelling- or Opera-Glasses.

The bag for opera-glasses is made of dark blue plush, lined with pink satin. Cut a piece of pasteboard the size of the glasses for the bottom, cover it on one side with plush, and on the other with satin; cut the bag to fit around the bottom and large enough at the top to allow the glasses to be slipped in easily; line it with the satin; stitch a hem near the top, and through this run a ribbon by which to draw the bag together and to carry it. Should it be desired to embroider a monogram,

A BAG FOR TRAVELLING- OR OPERA-GLASSES.

initials, or flowers upon it, this may be most conveniently done before the bag is sewed together.

BOYS & GIRLS' COLUMNS

The Water-Elf's Story.

BY "MOTHER GOOSE."

"How pleasant this is," said Karl, as he threw himself down by his little brook under the shade of the willow trees. Karl called the brook his, although it really belonged to the rich miller who lived far up the stream, and who thought much more of the amount of grain that the water would grind than of the beautiful little nooks hidden along its course. This spot was especially Karl's, and here he often used to come in summer days, for only a few sunbeams could follow him down the almost perpendicular banks of the stream, to the place where he was accustomed to lie, either watching the water-spiders as they skated and danced, or making acquaintance with some fat frog that had also come to the spot for shade. To-day Karl lay there resting and listening to the ripple of the water until he became drowsy, and might have actually fallen asleep, if suddenly it had not seemed to him that there were some words added to the music of the stream.

He started and listened intently for a few moments, but, hearing nothing, concluded that he must have been mistaken, and once more, resting his head on the rock behind him, closed his eyes. No sooner had he done so, however, than he once more heard the voice singing, and listening, he distinguished the following words:

"Fair little stream,
Do you ever dream
Of the by-gone day
When you bore away
A little maiden dressed all in gray?"

"Who can be singing?" said Karl to himself, as he sat up and looked around. A merry little laugh was all he heard in reply, but, after staring about for a few minutes, Karl saw, sitting under an enormous toadstool that grew out of a clump of earth a few feet out in the stream, a queer little old lady with a smiling face. She wore a huge cap with an enormous ruffle, and a green dress that sparkled all over with water-drops. As soon as Karl saw her, she bobbed him a queer courtesy that made the bells on her cap sing a chime which mingled prettily with the sound of the water. "Was it you who sang?" asked Karl, hastily pulling off his cap in response to his visitor's politeness. "Yes, indeed it was, my dear," said the tiny old lady, smiling still more, and looking for all the world, Karl thought, like a good grandma, if she had not been so very small. "Would you mind telling me who you are?" asked Karl, timidly. "I'm one of the Water-Elves," said the little old lady, pleasantly. "I suppose you don't know us very well, but I've often seen you here. A big frog just brought me down the stream, but I thought he was tired carrying me so far, and so I told him I would sit under this nice toadstool awhile, and sing to you before finishing my journey." "I'm sure I'm very glad you did," said Karl. "I thought your song was very pretty. I didn't understand it very well, though." "No, I suppose not; what I sang about happened a great many years ago." "Tell me about it?" said Karl. "Who was the little girl, and why should this stream remember her?"

"Her name was Margery," said the Elf-lady, leaning back against her toadstool and fanning herself with a leaf that the wind had blown her; "and a very nice little girl she was, too. As for the reason why this stream should remember her, you will see that, when you hear the rest of the story." "Where did she live?" "Yonder in the woods, in a little hut with her father and mother and two younger brothers. But Margery had a very hard time. At least, most little girls would have thought so, for her mother was not well, and so Margery had to cook the meals, and keep the house clean, and attend to a great many things that children are not often expected to do. But that was not half of it. Margery's father, who was a wood-chopper, had been struck by a falling tree, and so injured that he was unable to walk, and so on Margery depended the support of the family." "Why, how could she support them all?" asked Karl. "Well," said the Elf-lady, "she did the best she could. With the help of her little brothers, she dug up the patch of ground around the little hut, and planted vegetables. And then she used to hunt the woods through for berries and nuts, and she often came to this brook for fish, for there were many fish here then." "Why, I think she had to work altogether too hard for a little girl," said Karl; "I wish I had been there to help her." "That's just what we Water-Elves thought," said the little old lady, smiling, "and so we all tried every way to help her. I myself guided many a fine fish to her hook, and my cousin, Skip, one of the Wood-Elves, said that he told all the squirrels about her and warned them not to go near her patch of corn, under pain of having their ears well pinched. Even that mischievous Blue-jay, who was always plaguing somebody, was good to Margery, and often chuckled as he told us how he had flown on before her, stopping from time to time, until he had guided her to some lovely patch of ripe, red strawberries. The Wind, too, declared that he took especial pains to blow down great numbers of branches and dead sticks, so that Margery might have enough fire-wood. For the little girl and her brothers used to gather these, and bring them home in great bundles to burn. One day, when we Water-Elves were dancing about

MARGERY'S RIDE TO THE ELF QUEEN.

Drawn and Engraved for the American Agriculturist.

on the water and having a grand holiday, Blue-jay appeared in our midst looking so sober that we all wondered what could ail him. 'Such a sight as I 've seen,' said he. 'There is poor Margery crying her eyes out, and no one to help her.' 'What's the matter?' said my brother Whisk, as he balanced himself on a water lily leaf. 'Why,' said Blue-jay, 'you know that Margery had a wood-pigeon that she had tamed and loved so much. But there have been hard times in the cottage lately, I think, and to-day Margery had to let the pigeon be killed to furnish some meat for the sick mother, and that was what she was crying about. I saw her, for I was sitting in the oak tree, just by the door. I declare, I felt so sorry to think her pet must be killed, that I was almost on the point of offering to sacrifice myself instead,' and Blue-jay's feathers drooped and he looked so despondent that we all felt something must be done immediately. 'Dear me,' said Cousin Sparkle, 'what a hard time that child does have! And yet she never seems to complain. Why, I've heard her singing lots of times when she's been gathering sticks.' 'What did she sing?' asked her sister, Glitter, as she swung down from a leaf by the aid of a spider-web. 'It was something like this,' said Sparkle:

'Somewhere in this wood there is waiting for me,
Some hidden good that I soon shall see;
For a cheerful heart will ever find,
Blessings in places where grumblers are blind.'

"'I'll tell you what,' said an Elf named Flit, 'let's draw up a petition, and present it to our queen.' 'So we will,' shouted all the Elves, and immediately some rushed to get a white water-lily bud, on which they wrote the petition with a pen made of one of Blue-jay's feathers dipped in red ink from a strawberry. Then the Elves departed, dragging their petition over the water after them.

"The next day, Margery came down as usual to the brook to fish. While she was sitting on the bank, she heard a little noise in the water, and, looking down, saw a queer-looking object approaching the shore. As it drew nearer, she saw that it was a chariot drawn by four frogs. The chariot appeared to be made of some big green leaf, and an Elf with a green cap sat on the driver's seat. 'Good morning, little maiden,' said he; 'the Elf Queen has sent me to invite you to visit her.' 'But I cannot go,' said Margery in astonishment. 'I must catch some fish for dinner.' 'No one ever refuses the Elf Queen's invitations,' said the driver politely. 'But I never could get into that little chariot,' said Margery, smiling; 'I am so big that I should tip it over.' 'That is soon remedied,' said the Elf, and he touched her lightly with the little whip he held in his hand, and in a twinkling, Margery had changed her size, and was no larger than the Elf himself. But one could still recognize in her Margery's blue eyes and golden hair, even the self-same gray homespun dress that she always wore. 'Jump in,' said the Elf, offering his hand, and before Margery could object, she was sitting in the chariot, the driver was up in front, and she was being drawn over the water by the four frogs. She enjoyed the ride very much, but she could not help wondering how the Elf Queen would look, and what she could want of her. At last, after a brisk ride over the water, the chariot stopped before an immense rock on which the Elf driver tapped with his whip. Instantly the rock-gates swung open, and the chariot passed in. Inside they landed, and the Elf opened another door, which disclosed to Margery the throne-room, with the Elf Queen, surrounded by the other Water-Elves.

"Margery was much embarrassed at seeing the magnificence of the room, with its green, mossy walls sparkling with emeralds, but the Elf Queen smiled and said, 'Welcome, little Margery,' and two Elves led her up to the throne. 'My child,' said the Queen, 'I have received from these little friends of yours a petition, and have heard of your kindness at home, and have brought you here to reward you.' Margery bowed, but felt much confused, and the Queen, turning to the Elves, said: 'What shall be given to little Margery?' 'Give her one of the Magic Seeds,' shouted one bold little Elf. 'Yes, give her that,' cried the others. 'Very well,' said the Queen, smiling, and she sent ten elves for the present. They came in soon, dragging it with them, and the Queen, bestowing it upon Margery, said: 'Here, my dear, is the gift of the Elves, and here is a little flower-pot to plant it in. I hope you will be as good in the future as you have been in the past.' The Queen smiled, and the two Elves again took Margery by the hand, and led her away, back to the chariot that still stood by the door with the driver and the four frogs. The Elf driver again assisted Margery in, opened the rock-doors, and once more the little girl was riding up the stream. But Margery was bitterly disappointed. 'The Water-Elves meant kindly,' said she to herself, 'but I did so hope that they would give me something that would help us at home. To think of only getting this little seed and ugly flower-pot!' And Margery shed a few tears behind the Elf driver's back. He, however, having brought her to the same place from which she started, helped her to the shore, touched her once more lightly with his whip, changing her back to her proper size, and then waving his hand, drove off over the water, leaving Margery standing there, holding her two gifts and looking sorrowful.

"On the bank lay Margery's hook and line, and sitting down she soon caught her fish, and hiding the Elves' gifts in her pocket, went home to perform her daily duties. Before she slept that night, however, she planted the little seed in the flower-pot, 'for,' said she to herself, 'It may bear a rare kind of flower.'

"It was no flower that greeted the eyes of little Margery the next morning. The seed had indeed sprouted and grown during the night, until it formed quite a plant, and, hanging all over it, were shining pieces of gold. Margery looked at it in amazement, and then, catching up the flower-pot, ran to her mother, to whom she told the whole story of the Money-tree.

"Happiness and plenty came to the little cottage then, and continued there, for Margery's tree lived and grew, and neither she nor her parents ever lacked for anything again. But though Margery became a rich woman, yet there was one song she frequently sang, and it was this:

'Whether we're rich, or whether we're poor,
Of this one thing we may all be sure;
Better than gold, and better than beauty,
Is the joy that comes from doing one's duty.'"

The little old woman stopped speaking, and, just then, a big frog approached. "Are you rested?" said the Elf-lady, with a smile, and, as the frog croaked an assent, she climbed up in the side-saddle that was strapped on him, nodded good-bye to Karl, and in a moment she was far out of sight.

The Doctor's Talks.

Our boys and girls who live in some Southern States, may think it strange that I talk about planting corn at this late day. Their fields were planted two and three months ago, and the corn is now so tall that they are already looking forward to "roasting ears." All through the Northern States, this is the great corn-planting month, and this difference is one of the many things that show what an extended country is ours, and what a variety of climate we have. Whether the planting in the fields is early or late, you can easily learn what takes place in the field by sowing a few kernels in some earth or sand, in a box or other vessel, as suggested last month. I in April stated that the corn plant, which appears above ground, came out of the seed. Much larger, it is true, because it has grown, but the plant, very small and imperfect as it is, was in the seed. This little plant, which we will call the *embryo*, was really formed last summer in the kernel, while that was upon the stalk. When the seed ripened, the little plant went to rest, became dormant, to remain so at least for months, until warmth and moisture awoke it, and it started into life and began to grow. In figure 1, is a much-magnified kernel of corn, cut down through the embryo, and dividing the seed in half. The embryo is the portion at the right hand, and is that part of the kernel known as the "chit." The greater portion of the kernel is mainly starch, which is the part valuable as food for ourselves and our animals. This starch was packed away in the kernel last summer, and expressly for the purpose of feeding the embryo, or little plant when it should commence its growth. At *k*, in figure 1, is a bud, which, when growth begins, breaks through the skin of the seed and pushes through the soil to reach the light and air. This bud is called the *plumule*, the name given to the portion in all seeds that grows upwards. This in the corn is made up of several very small and delicate leaves coiled up, one within another. These leaves, after growth begins, increase in size very rapidly, and by the time they reach above the surface, appear as in figure 2. There is also a downward growth, the root, and the beginning of this, the *radicle*, is also within the seed, and is seen in figure 1, at *w*. As the plumule grows upward, the root pushes downward very rapidly. There is never any mistake. No matter on which side the seed may fall, the root never grows upward, nor the plumule downward. You know that, besides holding the plant in its place, the root plays a still more important part in taking up water from the soil. With the water, the roots take whatever may be dissolved in the water, and it may be said, in general terms, that plants are fed by the roots. Plant-food is dissolved in the water of the soil, and thus passes into the plant through the roots. The great work of the roots, then, is the absorption, or taking in, of water. In many plants, especially in quick-growing ones, the roots are much divided into fine branches, in order to expose as much surface as possible, and many roots have the surface still

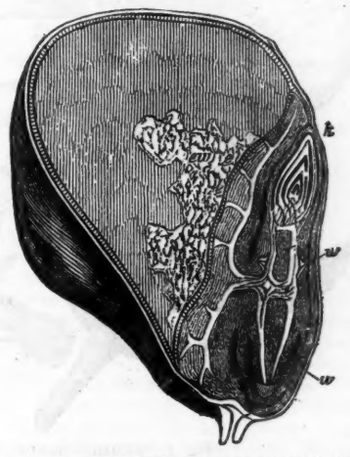


Fig. 1.—MAGNIFIED SECTION OF A KERNEL OF CORN.

Fig. 2.

more increased by means of hairs upon the surface; these root-hairs are so fine as to require a microscope to show them plainly. The roots grow at their tips only, and are thus able to make their way

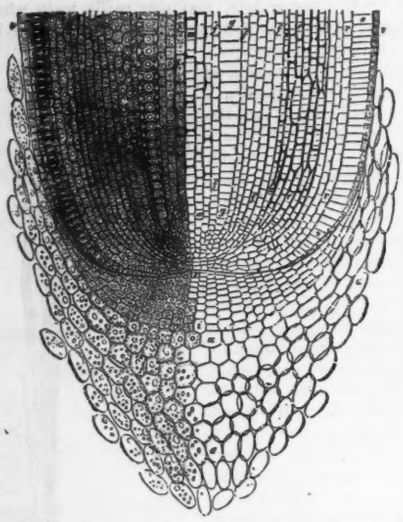


Fig. 3.—MAGNIFIED SECTION OF TIP OF ROOT.

through the soil in all directions. If you cut with a razor, or very sharp knife, an exceedingly thin slice, either crosswise or lengthwise, of a young and tender root, and examine it with the *American Agriculturist* Compound Microscope, you will find it is made up of little bags or sacs, called cells; these, as they are pressed by one another, take different shapes, but all are essentially like very minute bladders. We shall see later, that every part of a plant is composed of cells of some kind. The growth of any part of the plant is due to the formation and growth of cells. In the root, new cells are produced near the tip, but not at the very tip itself. The tender end, as it is pushed through the soil, is protected by a shield or cap of old cells, which, after they have answered their purpose in protecting the growing tip, fall away. Figure 3 shows the appearance of the tip of the root when highly magnified, the lower loose cells being the root-cap which covers the growing portion. Just behind the root-cap is the newly formed portion of the little root, and this part of the root is the most active in absorbing moisture from the soil.

Birds as House-Builders.

All the many different kinds of birds build nests for the same object, to provide a place in which their eggs may be hatched. It is most interesting to notice the different views taken by various birds as to what is needed for this purpose. Some birds require merely a slight hollow in the sand, or a few sticks, to keep the eggs from rolling about. Others spend days and weeks in weaving together an elaborate nest, which the most ingenious man could hardly imitate. In making their nests, birds follow various trades, and they have been grouped according to their manner of building. Thus, there are miners, masons, carpenters and platform builders among birds; some are basket-makers, weavers, and tailors; others still, are classed as felt-makers, cementers, and dome-builders; finally there are a few birds, as there are men, that live upon the labors of others. Such birds deposit their eggs in the nests of other and more industrious birds, to be hatched, and the young cared for by a step-mother. Birds guilty of this are called parasites. Many nests are built, not merely as a place for the eggs, but with a view to concealing the sitting bird and the young from their enemies. The various methods of doing this are often most curious.

HUMMING-BIRDS' NESTS.—Our Eastern humming-bird is very common. Probably every one of our boys and girls sees several of the birds each summer, but how many of you have ever seen a humming-bird's nest? Wherever the birds are common, the nests must be many also, yet so completely are they concealed that it is very rare to find one. The nest is not concealed in the sense of being hid, but so disguised that we take it for something else. The nest, an inch in diameter, and about half as deep, is most frequently placed upon a branch of an old apple-tree. It is built of the down of various plants and similar materials, and on the outside it is completely covered with the lichens so abundant on old and neglected trees, and commonly (though incorrectly) called mosses. The nest looks so exactly like a moss-grown, short stub left by bad pruning, that it easily escapes notice. South America is the home of the hummers, there being over three hundred distinct kinds found there, many of great beauty of form, and with a brilliancy of plumage which can only be compared to that of gems and precious stones. Some of these birds conceal their nests quite as effectively as do our own. Figure 1 shows one of life size, a native of Guiana, Cayenne, etc., and so brilliant that it has received the name of the Fiery Topaz Humming-bird. This diminutive creature not only disguises its nest by an exterior covering, but eludes some of its enemies by suspending its house from a leaf.

THE WEAVER BIRDS are nearly all natives of Africa. Some of them weave from grass and such

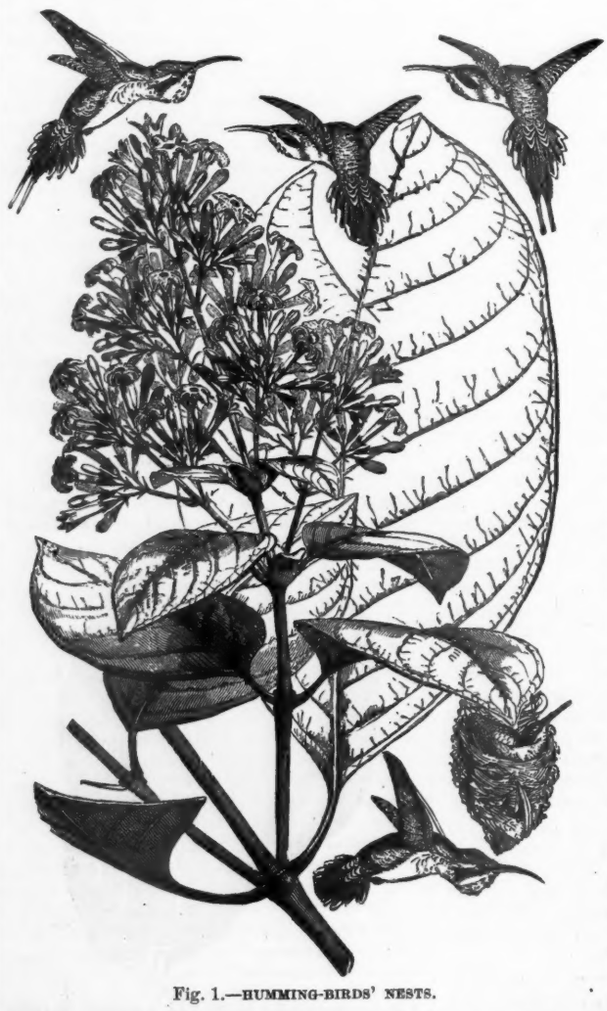


Fig. 1.—HUMMING-BIRDS' NESTS.

materials, curious bags, within which they build their nests. The most curious of all is the Sociable Weaver-bird of South Africa. A large number of these, in working together for a common object, show a remarkable degree of intelligence. The bird is about six inches long, brown above and yellow below, and lives in communities of five hundred to a thousand. Having selected a tree with a bark so smooth that animals can not readily climb it, the birds first build of grass, etc., a

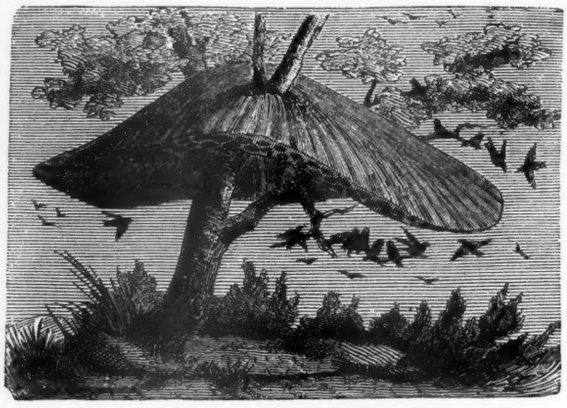


Fig. 2.—THE WEAVER BIRDS.

thatched roof of an umbrella shape (figure 2), which is often twelve feet across. This being for the general shelter and protection, all the birds work upon it, and when it is completed, each pair builds its own nest, just under the eaves. These birds use a nest but once, and each returning season add new nests to the old. Though the nests, being made of grass, are very light, when soaked by rains they become too heavy for the roof and the branches of the tree, and at the end of a few years, the colony is broken up by the falling of its tenement house, which, like some of those in our large cities, comes down with a crash. As with many other interesting things, we need not go to far off countries to find examples of house-building birds. Some of our own birds show great skill in constructing a pouch within which to conceal their nests. Every country boy knows the nest of the Haug-bird. As it swings from a slender twig near the top of some high tree, you may be tempted to climb and capture it. The bird hides her nest from winged enemies by placing it at the bottom of a bag, and she outwits the small boy by hanging it quite out of his reach. The nest, or rather the pouch that hides the nest, is as ingenious in its way as any other houses made by birds. The builder evidently knows where the strain will come, and uses the strongest materials to make fast the structure to the twig. The pouch is woven of the strong fibres from the Indian hemp and various other wild plants, but the builder does not refuse strings, thread, ravellings, or similar materials, and has been known to steal valuable lace that had been laid out on the grass to bleach, and work it into the fabric. The ingenuity with which the bird weaves all these materials together to build a house for its nest is really surprising. The nest itself is made of grass and hair, with sometimes, a few feathers and other light, convenient materials,

Recipes for Every Home.

ELMER LYNNDE.

BEEF SOUP.—Three pounds of lean beef, with a marrow-bone; a ham-bone, if you have it, or half-pound of lean ham; one turnip, one onion, one carrot, quarter of a cabbage, three stalks of celery, three quarts of cold water. Salt and pepper to taste. Cut the meat fine, and crack the bones. Put them in a pot with a close top, cover with one quart of water, and bring slowly to a boil; the slower the better. When it begins to bubble, add the other two quarts of water, and boil slowly for three hours—two hours with closed top and the last with it slightly lifted. Wash and peel the turnip, carrot and onion; scrape the celery and wash with the cabbage. Cut all into dice, and lay in cold water, slightly salted, for half an hour. Stew the carrot by itself in hot water until tender, then set aside to cool. Put the other vegetables on all together, in enough cold water to cover them, and let them boil to pieces. Strain them half an hour before taking up the soup, and press to a pulp. Return the liquid to the saucepan, throw in a little salt, and let it boil up once to clear it; skim and add to the soup. Put in pepper and salt, unless the ham has salted it enough, and boil, covered, twenty minutes. Strain into an earthen dish; let it get cold enough for the fat to rise. Skim off all you can. Rinse the pot with water; return the soup to it; boil briskly one minute, and throw in the carrot. Skim and serve.

TURKEY SOUP.—Break up all the bones of one turkey; add one pint of soaked split peas, and three quarts of water. Put it on early in the morning; add a little celery and salt for flavoring. Season with pepper and salt, and boil slowly until noon. Strain.

SAGO SOUP.—Take good, clear, soup stock; remove the fat from the top and strain. Bring to a boil, and stir in half a cup of pearl sago, which has been washed and soaked for half an hour in tepid water, or three hours in cold. Season if needed. Simmer half an hour, and pour out. Send around grated cheese with it.

CLAM SOUP.—Boil a knuckle of veal; strain the liquor; add twenty-five clams, chopped fine, four good sized potatoes, one onion; drop dumplings. Season to taste with pepper, salt, sweet marjoram or parsley. Just before serving, thicken with one egg and flour, made smooth with a little cream.

ROAST CLAMS.—These are very nice if properly done. Select either large or small clams. Lay them on the coals, and as their shells open, watch them closely until they are somewhat cooked. Send them to the table as hot as possible, on the half shell, with a small piece of butter on each.

CUCUMBER SAUCE.—Three dozen cucumbers, six or eight white onions, half pint salt, two quarts cider vinegar, quarter cup black pepper, one cup black mustard seed, six dozen cloves. Slice the cucumbers and onions, and put them with the salt in a bag to drain for six hours; then add pepper, mustard seed and cloves, and cold cider vinegar.

RELISH OF CABBAGE.—One good, crisp head of cabbage, shaved fine as possible; one tablespoonful of grated horseradish to each quart of cabbage; one pint cider vinegar; let it come to a boil. Three eggs, a little salt. Beat the eggs well, stir into the vinegar until cooked, then pour it over the cabbage and set away to be eaten cold. It will keep several days.

DRESSING FOR CABBAGE.—One egg, half cup of milk, half or two-thirds of a gill of vinegar, a little sugar. Beat up the egg with the milk, pour on the vinegar boiling hot, cook it with a little sugar, and set aside to cool. Shred the cabbage, season with pepper and salt, and pour over it the cold dressing.

SALAD DRESSING.—Yolks of eight eggs, one tablespoonful of salt, three tablespoonfuls of prepared mustard, one tablespoonful of sugar, one cup of cream or milk, one cup of butter, cayenne pepper to taste. Stir well together over the fire, until it thickens like boiled custard, then add gradually one pint of vinegar.

The New Commissioner of Agriculture.

We heartily congratulate Mr. Norman J. Colman, of the "Rural World," St. Louis, on his appointment as Commissioner of Agriculture. It was a graceful tribute to the Agricultural Press of the United States. While Mr. W. W. Corbett, of Chicago, and several other Western gentlemen whose names were warmly pushed for the position would have admirably filled it, everybody will be satisfied with Mr. Colman's appointment. One gratifying fact connected with his appointment is the certainty of the knowledge that he availed himself of no dishonorable means for securing the appointment. His course has been in marked contrast with that of another so-called Agricultural Editor who desired the appointment under President Garfield. It is a story that has not hitherto been told. The aforesaid individual, unknown to his business associates and owners of the establishment with which he had a fragile connection, quietly went to work and prepared several thousand circular letters, directed to President Garfield asking his appointment as Commissioner. Then these "petitions" were surreptitiously mailed to the canvassers and club agents of the journal with which he had this slim connection, with the request that they forward them to President Garfield, just as though they were spontaneous documents. Unfortunately, however, for the aspirant for official honor, President Garfield was notified by some cruel enemy of the device, and when the documents arrived one after another he filed them away with not a little amusement. After a bushel, more or less, of the petitions had arrived, and the aspirant went on for the position, he could not understand why the President should be so frigid. It is unnecessary to add that the aforesaid so-called Agricultural Editor was *not* appointed.

Houghton Farm in a New Role.

We presented in the *American Agriculturist* for Feb., 1883, a very comprehensive description of HoughtonFarm, together with numerous illustrations and engravings of the numerous buildings by one of our artists, who devoted several days to the work. The engravings were so arranged on opposite pages as to afford a sweeping birds-eye view of this farm "devoted to agriculture," to quote the language of the proprietor, Mr. Lawson Valentine. He has now placed this farm of over a thousand acres at the disposal of the Chautauqua Literary and Scientific Association. This Chautauqua Association, having a membership of over eighty thousand, with headquarters at Chautauqua Lake, has established a new branch to be called the "Chautauqua Town and Country Club." This branch is designed to make the members (any one can join on the payment of twenty-five cents), familiar with the work of the farm, garden and household. The headquarters for work and instruction are to be at Houghton Farm, whose manager is Major Alvord, while the business office is at Plainfield, New Jersey. Mr. Charles Barnard, both a practical florist and cultivated writer, is to have charge of the new branch. For further particulars, address Miss K. F. Kimball, Plainfield, N. J., enclosing stamp. Our crowded columns prevent our giving more space to this enterprise at this time. If Houghton Farm shall through the Agency of the Chautaqua Club increase and develop the love of agricultural pursuits, it will be a source of no little gratification and pleasure to the owner, Mr. Lawson Valentine, who has recently returned from an extended tour through Europe, where he was afforded a fine opportunity for studying the best systems of agriculture, at Rothamsted and elsewhere. We shall be pleased to mail a copy of the *American Agriculturist* containing a description of Houghton Farm to any one of our readers on receipt of price.

OUR BASKET.

Harness for an Ox.—J. Newton, Santa Rosa Co., Fla. To harness an ox, an open collar to buckle over the top of the neck is used (a wooden collar, hinged at the bottom by a strap is very good), and a broad belt behind the shoulders with loops, serves to carry the traces. These parts are all that are required.

Oil Stains on Marble.—H. B. Webb, Davidson Co., Tenn. To remove stains of oil or grease from marble, apply pipe clay, or even common clay, saturated with benzine. If the grease has remained long enough, it may have acid properties and injure the polish, but the stain will be removed.

The Best Windmill.—F. M. Wanner, Stutsman Co., D. T. Any one of the leading windmills which are mentioned in the advertising columns will be found useful and effective. The best way is to send to all of the makers for catalogues, and choose the one which offers to be most suitable. They are all made to regulate themselves against excess of wind.

Leaking Milk.—W. W. Taylor, Utah Co., U. T. When a cow leaks milk, the only remedy is to take the milk three times a day, and relieve the pressure on the udder. The cause of the trouble is that the sphincter muscle at the end of the teat is too weak to resist the pressure of a full udder, and the difficulty in the way of preventing it is that the udder and teats are too tender to resist any increase of pressure without causing a worse trouble.

Florida for Stock Rearing.—Wm. H. Heiser, Northumberland Co., Penn. Florida is not a suitable State for sheep rearing on account of the almost entire absence of grass for pasturage. The best southern locality for rearing sheep is the mountain district of North Carolina, where the winters are mild, the summers cool, the water abundant and pure, and where there are no swamps. Sheep are kept out all the winter there, and do well.

Marking Fowls.—D. P. High, Columbus Co., N. C. Fowls are easily marked by punching holes in the web of the feet between the toes. To do this, get a common hollow punch, put a wooden handle on it, set the fowl on a board, and press the punch through the web with a strong push, or a blow with a hammer. The fowls do not seem to mind it. Another way is to clip the feathers off in a line across the head, or put a streak of red paint across the the back.

A Bitting Rig.—E. Colloredo, Summit Co., O. The very useful bitting rig described and illustrated in the *American Agriculturist*, Oct., 1878, page 371, need not cost more than four or five dollars. All that is required is a bridle, a surcingle, with rings where required, and a crupper with a strap to the surcingle. The rig is completed with light cords; a cotton clothes line is excellent for the purpose. No skilled work is needed; the directions given are sufficiently full.

Manure with Sawdust.—J. M. Sanborn, Otsego Co., Mich. For light land sawdust is objectionable because it is apt to make the soil porous and dry. Manure made with sawdust for litter in horse stables is very dry and apt to fire-fang and be spoiled. If it is mixed with the cow manure, or used in the cow stables as an absorbent, or for bedding for fattening cattle or pigs, or calves, it will be much improved, and may be used on light soils without objection, and the more of it the better.

Seed Potatoes in Warm Climates.—Mr. Oscar Gemmar, of Erie Co., N. Y., asks us how seed potatoes can be preserved from season to season, in warm climates. Farmers living in Southern States raise two crops of potatoes in one season, planting as early as possible, and again as late as possible, so that the seed potatoes of the second crop may be kept and used for the first crop of the following season. In this way the time for keeping them is much shortened. They must be dried in the usual manner, and kept as cool as possible.

Protect the Harness from Mice.—E. Chambers, Lancaster Co., Pa., writes us that if a harness is dressed with cod oil, it will not be touched by mice. He finds this the best kind of oil for leather tanned with bark.

Ruta-Bagas for Horses.—M. L. Tolvstad, Spink Co., Dak. A horse has a small stomach, and must be fed with concentrated food chiefly. Nevertheless, a change of food to succulent vegetables, as carrots or ruta-bagas, is often desirable, but only small quantities should be given. Four quarts of sliced ruta-bagas may be given to a horse two or three times a week with benefit, but it is not advisable to add any meal or grain with the roots, lest the food might ferment in the stomach and produce colic.

Ammoniacal Liquor from Gas Works.—O. Mulvey, Sedgwick Co., Kans. The water in which gas is washed in the gas works, absorbs the ammonia from it, and when sulphuric acid is used with the water sulphate of ammonia is formed. A very large quantity of this substance is thus made, and supplies nearly the whole demand for it for fertilizing purposes. The so-called ammoniacal liquor is evaporated, and the resulting sulphate of ammonia is used as a valuable fertilizer. The liquor may be absorbed by earth, or any other porous substances, and spread on the land.

Wind and Sand Mill.—G. W. Leslie, Washington Co., Vt. In some places where loose dry sand and wind are abundant, mills called "alastras" are used with economy. These are most used in mining countries, where fuel for engines and water are scarce. A windmill raises the loose, dry sand, and drops it into an overshot wheel, furnishing motive power, but with a great waste of force, which makes the method objectionable where it can be avoided. It would be cheaper, in Vermont, to use a windmill directly and a steam engine may be most economical.

Embalming Birds.—A. Price, Butler Co., Iowa. A taxidermist of Erie Co., N. Y., says: "There is no successful mode of embalming birds to preserve their plumage. The ordinary process of skinning and preserving the skin with arsenic, is the only successful method I know of. This method is easily learned, though it requires considerable practice to become expert. Very small birds, like humming birds, are sometimes treated by making a slight incision, burning out the intestines, and as much flesh as possible, with a hot iron, and filling the cavity with cloves and arsenic."

A Cattle Fender.—W. K. Gibbs, Martin Co., N. C. A United States patent costs about sixty-five dollars in all. The questions which an inventor may ask himself in regard to patenting any useful device are, first, Would he think it desirable to pay a price for such an article as he has invented, were his position not that of an inventor? If he thinks he would snap eagerly at such a chance? Then second, Would he feel safe in investing the amount of fees? No doubt an effective fender, that would prevent cattle from doing mischief with their horns, would be a very desirable thing for farmers' and dairymen's use, and indispensable where bulls are kept.

Gas Lime for Manure—Q. Dick, Marshall Ohio. Gas lime is dear as a gift. It is not worth hauling when good lime can be procured for ten cents a bushel. The caustic properties of the lime are destroyed, by which its value is greatly reduced, and it is impregnated with substances which are injurious to vegetation. After long exposure, the gas lime loses this undesirable quality, and combining with some sulphuric acid left in it, changes partly into gypsum, or sulphate of lime. It is then of some use. At the best it is not worth paying for or drawing any considerable distance.

Clover as a Fertilizer.—E. Watson, Morgan Co., Ill. Clover is an useful crop for plowing under as a fertilizer. But it is a waste to plow in the tops, which should be cut for hay and fed, and the manure spread on the land, the sod only being plowed in. Clover is usually sown on fall grain, early in spring, but it may also be sown in the fall by itself, or with white turnips, not later than August. It will then be strong enough to stand the winter, especially if the turnips are left to protect it. The first year it is cut for hay, and the aftergrowth may then be plowed in for wheat, which does best after clover. About twelve lbs. of seed per acre is used.

Cannot Bring Butter.—J. M. Deardorf. The causes of trouble in bringing butter vary. The feed may be at fault. Hay alone, or with beets, will not produce butter of good quality, or that is easily churned. Some corn meal—two quarts a day, at least, should be given with this feed. But the way in which the milk is kept is the most frequent cause; it is kept either too cold or too warm, or too long before the churning. The milk should be set at a temperature of sixty to sixty-five degrees; it should be skimmed after thirty-six hours and no more; and the cream should not be kept more than thirty-six hours before it is churned. When the cream goes into the churn, it should not be warmer than sixty degrees, nor cooler than fifty-five.

Management of Manure.—E. F. Dickinson, Middlesex Co., Mass. It is a mistake that manure when put in a heap out of doors loses ammonia. The disagreeable odor of a manure heap is not caused by ammonia, but mostly by sulphuretted hydrogen, caused by the decomposition of the organic matter, containing sulphur, in the manure. The vapor of ammonia is pungent, and is found in loose manure and stables chiefly. In the decomposition of manure that is kept moist, the ammonia is absorbed by the water, and it is useful to sprinkle ground gypsum (plaster) liberally in manure heaps, for the purpose of assisting in retaining the ammonia. There is no danger of any serious loss in a low, flat manure heap that is exposed to the weather, and remains moist. Salt is of no effect in retaining ammonia.

Disposing of Fine Butter.—A. J. Tupper Tompkins Co., N. Y. In disposing of products one may easily overlook a good home market in aiming at a distant one. A good butter maker of our acquaintance put a choice product in two and five pound boxes, and offered them for sale to families in the village, and thus disposed of the product of fifteen cows with ease, at fifty cents a pound. This was better than sixty-five cents in a city at a distance. Private families are the best customers, and to procure these in a city, it is best to advertise in a city newspaper, offering sample packages on trial. In a case known to us, one advertisement brought fourteen requests for five-pound pails, and all but one became permanent customers.

The Pickle Question.—Certain inquiries are quite sure to come each spring; among these is that of raising cucumbers for pickles. The list is now headed by a letter from C. S. Palmatier, Richland Co., Ill., who asks, first, about raising cucumbers, and next, where he can dispose of them. If one does not know of a pickle factory near at hand, or cannot arrange for the disposal of cucumbers as fast as they are gathered, it will be folly for him to raise them. Every market gardener knows that the disposal of his crop requires quite as much care as does the growing of it. Unless the market for cucumbers is provided in advance, do not raise them. If there are pickle factories which will take the produce, they may be made fairly profitable. The usual method is, to make richly manured beds by opening furrows five feet apart, placing manure in them, and turning a furrow upon it from each side, and rolling. The seed is dropped in the center of the beds thus made, every inch or two, and the plants finally thinned to a foot apart. Whatever size of cucumbers may be contracted for, be sure to cut them with a stem.

The Best Roots.—F. M. W. The best roots for cattle are mangels or sugar beets; the best for horses are carrots. Mangels are good for sheep and pigs.

Mutual Life Insurance Company of New York.—Hon. Richard A. McCurdy has been unanimously elected President of the Mutual Life Insurance Company, *vice* Mr. F. S. Winston, deceased. He is a fit successor for this wonderful Company, whose assets amount to over a hundred millions of dollars. There is no other Insurance Company in the world which has a stronger board of managers, and no Company which can be said to be more absolutely safe.

The Use of Twine for Binding Grain.

When the reaper was invented it revolutionized harvesting, but it only partly did its work. Cutting the grain being but a part of the labor of the harvest field, the harvester was not complete until it could gather up the grain into sheaves, and bind it ready for the threshing machine. Numerous self-raking devices and droppers were invented, gavels were made to be bound by a binder who rode upon the reaper, and at last came the automatic binder. In binding, the machine could not imitate the binder in the field, and make its band of straw; cord presented many difficulties; wire appeared to be the most available of all binding materials, and was adopted in the early self-binding machines. Wire was excellent up to the point of binding the sheaves. Unlike a straw band, the wire remained after its time of usefulness was past. The wire bands would accidentally pass into the threshing machine and clog it, or being cut into bits, pass out with the straw, and injure the animals which fed upon the straw. Besides, in the free use of wire upon the farm, bits were scatter d about to injure animals in various ways, and to become such a nuisance as to offset the advantages of automatic binding. A binder using twine was invented, and trouble from this source appeared to be at an end. But a twine binder required a special kind of twine, and none of that in use for other purposes was exactly suited for the antomatic twine-binder. It was at one time hoped that the demand for suitable twine for the binding machine would benefit the farmer by creating a demand for the straw from the crop of flax raised for seed. To bring flax straw into a condition for spinning, requires machinery too expensive for the farmer, and the utilization of flax-straw on the farm is yet a thing of the future. The makers of twine, after considering and testing the various fibres of the world, finally decided upon that known as Manila as most suitable. It has the requisite strength, is easily spun, and can be obtained at a price which will admit of its use. Here is an interesting illustration of the importance of commerce to agriculture. The farmer on his wheat field in a far inland Western State calls for a twine with which to bind his wheat. One of the Philippine Islands, in the far-off China Sea, responds with the fibre best suited to his use, and commerce brings it to him. The fibre known as Manila is so called because it is exported from the city of that name on the Island of Luzon; it is known in its own country as *Abaca*. This fibre is obtained from a species of Banana (*Musa textilis*), which does not produce an edible fruit, but is extensively cultivated for its fibre only. It attains a hight of from twenty to thirty feet, and like the stems of others of the genus, is not a true, woody trunk, but consists of the broad leaf-stalks, which closely enwrap each other. The tree is cut down, the leaf-stalks are separated, and by beating and scraping them, the pulpy matters are removed, leaving only the fibres. Though produced by hand labor only, over thirty thousand tons of the fibre are annually exported from Manila. Among the large manufacturers of Manila fibre into paper, ropes, and especially into harvester twine, are L. Waterbury & Co., of New York City, who annually consume over forty-six million pounds (46,000,000 lbs.) of the crude fibre. This firm finds that by the use of a portion of Sisal hemp with the Manila fibre, they can materially reduce the cost of the harvester twine, without impairing its quality. Sisal hemp is a fibre obtained from a species of Agave, closely related to the Century plant, and produced in large quantities in Yucatan and the neighboring countries. Its fibres do not exceed four feet in length, while those from the Manila are from four to eighteen feet long. The two fibres combined form a twine which possesses every requisite of strength, smoothness, and freedom from bunches, demanded in a cord to be used in a harvesting machine. Besides this, the material offers an advantage over other fibres, in not being attacked by grasshoppers, a matter of no little importance in some localities.

The factories of Waterbury & Co. cover about fifteen acres of ground, and contain the most improved machinery, set in motion by an engine, said to be the largest factory engine in the country. In making the harvester twine, the fibres are first scutched, to clear them of all foreign matters. They then pass to a machine, which combs and straightens them; they then go to the drawing frames, which draw the mass down to the proper size; the final spinning is done upon machines called "jennies." By means of a machine the twine is made into compact balls of proper size, to fit the boxes of the harvester. The firm, in order to distinguish the binder twine of their manufacture, attach to each roll a red tin tag. This also serves to indicate the proper end of the twine to be passed into the machine, which passes it around the sheaves to bind them.

Modern House Painting.

Too little attention has until recently been given to the decoration of wooden dwellings, thousands of which, including those of plain and simple design, might be transformed into picturesque and highly ornamental cottages by the judicious use of rich colors; thereby enhancing the beauty and attractiveness of the exterior, to no less extent than is now almost universally effected in "interiors" by the employment of modern paper hangings of rich and artistic designs upon plain white walls and ceilings.

The laudable and rapidly growing tendency to the free use of color in the decoration of villas and cottages as well as the most pretentious structures, renders it, more than ever, necessary that the paints employed should be of the best possible quality.

It is a well-known fact that the average cost of applying paint is from two to four times as much as the cost of the paint itself, but probably not more than one in a hundred purchasers stop to think of the questionable economy of expending from fifty to one hundred dollars for labor in applying twenty-five or thirty dollars' worth of inferior paint, which after a year or so affords neither protection nor ornament, when the use of a strictly first-class paint (costing twenty per cent., or, say five or six dollars more for sufficient to paint a small house) would insure a serviceable and always pleasing result for at least two or three times as long.

Another important fact—which no intelligent, honest painter will deny—should also be more generally known, viz.: that a gallon of paint composed of the best materials, thoroughly combined, will, in consequence of its superior "body" and opacity, "cover" from twenty to twenty-five per cent. more surface than a gallon of such paints as are commonly sold.

Many who have had experience with cheap paints, and who are deterred from keeping their houses well painted by the seemingly endless expense, will be glad to learn that it may be avoided by the use of handsome and enduring colors, and we refer them to the new edition of the illustrated pamphlet, *Structural Decoration*, just published for free distribution, by the H. W. Johns Manufacturing Company, of New York, containing illustrations of many public and private buildings, decorated with H. W. JOHNS' "Asbestos" Liquid Paints, with samples and description of the colors used.

These Paints have a larger sale in this country and abroad than any others for structural proposes, and for obvious reasons they command higher prices.

High praise from a high quarter.

The *American Agriculturist* of April, 1885, says:

"Rarely does the *American Agriculturist* editorially allude to the virtues of the various articles advertised from time to time in its pages. The fact of this or that thing being admitted to our columns we desire to be regarded as prima-facie evidence that it is good. We however take great pleasure in recommending our readers to buy the Asbestos liquid paints, because we have from year to year thoroughly tested them and found them to be all and more than all they are recommended to be. The Asbestos liquid paints are made from the best and purest materials, combined on different principles from any other liquid or mixed paints. The best linseed oil and the best pigments are employed in their manufacture. The H. W. Johns Manufacturing Co., who manufacture Asbestos Roofing, etc., have branch houses in Philadelphia, Chicago and London."

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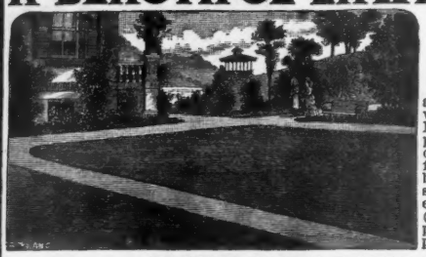

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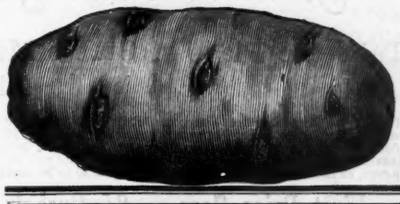

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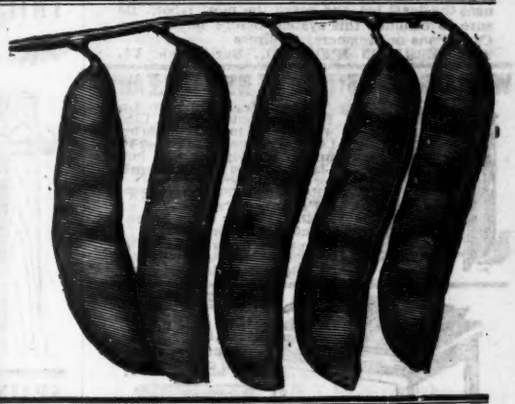

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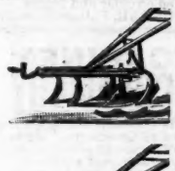

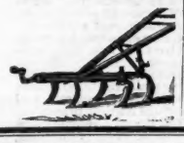

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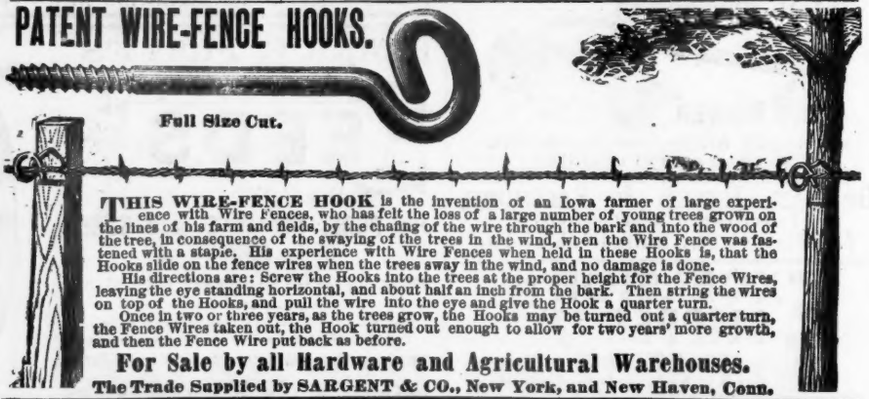

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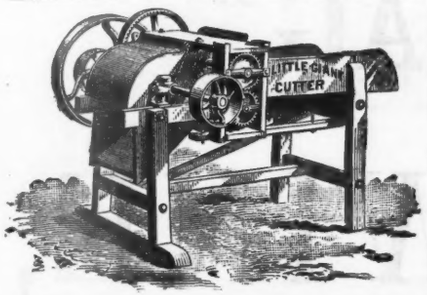

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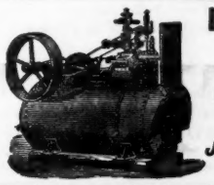

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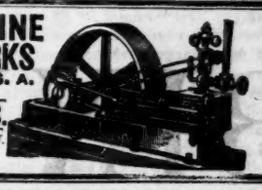

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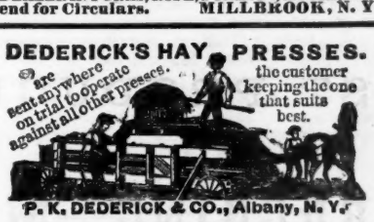

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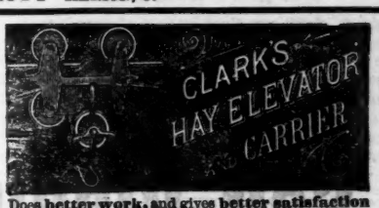
while the barns are full. You can then do the work yourself without the aid of a carpenter, as you require no scaffolding. For circulars and prices of the best Hay Conveyors, for either straight or curved track, address. **J. A. CROSS,** Fultonville, N. Y. *State* and *local* agents wanted.

HAY

CARRIER, HAYING TOOLS. BEST IN USE. Prices low. **GEO. W. KING,** Box 99, MARION, O.



Does **better work,** and gives **better satisfaction** than any in use. **Sent on trial** to responsible farmers. **Large Carriers** for handling Coal, Stone, Iron and Merchandise, a specialty. For circulars, address
W. I. SCOTT, Bridgewater, Oneida Co., N. Y.

GRAPPLING
HAY FORK
AND
CONVEYORS

For Track, Rope or Rod
For BARNS or STACKING.
BEST Combination.
Used by Thousands
Prices Reduced.
Send for Circular.
AGENTS WANTED.
G. B. WEEKS SYRACUSE New York.

Gardner's Railway Pitching Apparatus.

Consisting of Grappling Fork, Carrier, Pulleys, etc. This Fork, Car, etc., has been sold throughout the U. S. and Canada with the greatest success. It has won its way amid the greatest competition of Forks and Carriers, and is without doubt the best hay and grain unloader made. Every farmer should send for a circular
NOW. E. V. R. GARDNER & Co., Westtown, Orange Co., N. Y.

THE MAN

WHO MAKES
5 Ton Wagon Scales,
Iron Levers, Steel Bearings, Brass Tare Beam and Beam Box, for
$60 and
JONES he pays the freight—for free Price List mention this paper and address **JONES OF BINGHAMTON,**
Binghamton, N. Y.

WELL BORING,

ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY and how to use, is fully illustrated, explained and highly recommended in "**American Agriculturist,**" Nov. No., 1879, page 424. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Makes wells in earth or rock anywhere. We want the names of men that need wells. Send stamp for illustrated price list and terms to Agents.
Pierce Well Excavator Co. Long Island City, New York.

Lifts **20 to 50 tons** worked by two men; 5 sizes. Price, $35 to $70. Stands on runners. Circulars free.
H. L. BENNETT,
Westerville, O.

SAVE MONEY

By sending for a Price List of Plows, Hillers, Horse Hoes and Cultivators, Nursery Plows, &c., to
S. ADAMS & SON, Rome, N. Y.

FOR MACHINE SHOPS AND BUILDERS.

It is desired to utilize an Agricultural Invention of very great utility. For further information apply to **Publishers of the "ANZEIGEBLATT," Penzlin" Mecklenburg, Germany.**

"RED TIN TAG"

BINDER TWINE,

FOR

Self-Binding Harvester Machines,

MADE BY

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LARGEST PRODUCERS OF

CORDAGE AND BAGGING—MANILA PAPER.

ANNUAL PRODUCT, FORTY-SIX MILLION POUNDS (46,000,000 lbs.)

Give us Your Name.

In writing requesting us to expose this or that fraud will our subscribers be sure to give their names and address in full? We shall feel authorized to print them except where we are specially requested not to do so.

Anonymous Communications.

The rule of this establishment for years has been to pay no attention to anonymous communications. Whoever writes an anonymous communication attacking another person, may be set down as a coward and a poltroon.

New Indian Commissioner Wanted.

There is one member of the Board of Indian Commissioners whom President Cleveland should supplant without an hour's delay. We allude to the member who swindled everybody he could get his hands on in the Eastern States, and then left for the West last year. Any individual who could so ruthlessly salt the Whites should certainly never be entrusted with the care of Indians. The writer uses vigorous English, inasmuch as he aided in securing the appointment of the individual alluded to, for which he asks pardon of the Indians.

Bogus "Honors."

One of the thinnest and meanest ways of securing a cheap reputation is to contribute money on paper to some Educational Institution, or to erect a College building with somebody else's money. By the way, why should not the name over that large building in New England be pulled down immediately? So long as it remains there, it is a reminder of very unsavory acts. Supplant it with the name of some one of the many persons who were victimized by the spurious philanthropist.

Look Closely to Their References and Credentials.

Honest commission men, when they send out their circulars, or advertise to solicit consignments, offer references as to their business responsibility in advance. If a strange commission house gives no references, ask for them; if they are not given, let them alone. The swindler usually gets his business by visiting the farmers in person, or sending a representative, and by offering a larger commission than that given by the regular dealers, tempts the farmer to consign him his produce. The career of these chaps is short; they sell whatever may be sent them at any price they can get, pocket the proceeds, and when the final crash comes, are not to be found.

How to Recognize a Fraud.

There are several kinds of frauds, but they all have the same sorts of ear-marks. Some pretend to give medical advice free, and will tell you all about how to take care of your bowels and liver, and so forth; then perhaps recommend some simple medicine; then finally wind up by offering you the best paper in the country. This is one of the most plausible and deceptive of these fellows' devices. Another is to print and distribute long circulars filled with their personal history and misfortunes, with false stories of persecutions and troubles from ungrateful people whom they have befriended. This is the fraud who appeals to your sympathies and seeks new victims in a false and hypocritical manner. He wants your money, too, as well as your sympathy and pity, but the money mostly, and is the most dangerous of all, especially when he plays the religious dodge. Then there is the man who offers you something valuable for less than its cost; or offers you a loan without interest or security; or offers a premium for answers to bible questions; but all have a paper to sell, and no one can get a loan or premium but a subscriber to his paper, and he does'nt, either. When any person requests money to be sent in ordinary letters, not registered, and not in the shape of postal notes, this request is a clear indication of something wrong and should set people on their guard.

AND WHY?

Because the Post Office authorities have a lawful right to return registered letters and postal notes to the senders; but can only send ordinary letters to the Dead Letter Office, where they may lie a month before they are opened and returned to those who wrote them.

Peach Growers' Troubles.

The area devoted to peach orchards has been greatly extended within a few years. Many of these orchards will yield their first crop this summer and autumn. These new peach growers will be beset, as those long in the business have been, by glib-tongued visitors, who represent that they have great facilities for making sales, and by offering heavier commissions, tempt the peach growers to consign their fruit to them. Don't do it. Before the crop comes in, visit New York or other markets, select your commission house, and stick by it. If these visiting chaps induce you to send them fruit, and you call on them during the season, you will find that they have no regular place of business, but receive and sell their fruit on the sidewalk, the pier, or wherever they can get rid of it. When settling time comes, they cannot be found.

Tree Peddlers and Tree Agents.

F. M. Borden, of Nova Scotia, writes us a most sensible, well considered letter, one most excellent in its tone, and worthy of respectful consideration. In March last we cautioned our readers thus: "Look out for those glib-tongued tree-agents, who *pretend to represent* a nursery in good repute, but fill their orders with refuse stock, which they buy wherever they can find it, and label it to suit." Mr. Borden writes that he is himself a tree agent, and in a very gentlemanly manner protests against being classed with swindlers; he of course admits that there are dishonest persons in the business, but thinks we should discriminate between these and those who deal fairly. Our position in regard to "nursery agents," and "tree peddlers," is this, and has been expressed in former issues. If an agent claims to represent a reputable nursery, he will have no difficulty in showing that he has a right to so claim, just as Mr. Borden has no difficulty in convincing us that he purchases largely of a leading nursery in New York State. We hold it of the greatest importance that the farmer or other purchaser should have good trees, and true to name. On this account we have advised, where there is any doubt as to the honesty of the agent, to write to the nursery he claims to represent. In case the agent is disowned, we have advised the purchaser to refuse to take the stock, as the order was obtained under false pretences. We are willing to admit that there are honest men in the business, for we have known a few, but we are well aware that the occupation is one calculated to attract the dishonest, as it affords abundant opportunities for fraud.

Ably Edited Newspapers.

The frauds and humbugs seem to be gathering in Chicago. After having fleeced and swindled the public in the East, they go West to start anew, and as one of them modestly says, "to make a living for themselves and those who are dear to them." They say nothing about how "dear" they have made themselves to the victims they left behind them. Among them are some "able editors." One of these frauds claims to "manage" the "ablest edited paper in the country." Some of them are already in the Sheriff's hands, and more are in danger of making a close acquaintance with this official. We have already referred to two or three of them. One is called the "Chicago Post and Courier"; another is the "Illinois Agriculturist." The able editor who controls these two papers is G. S. Mayo. This scamp was arrested a few days ago by the U. S. Marshal and held in bonds for two thousand dollars on complaint of the Post Office Inspectors. The Inspectors say that ten thousand dollars a day is taken in by similar frauds in Chicago alone. These papers are lottery concerns, which offer prizes to every subscriber, varying in amount according to the number of the subscriptions.

Alabama in the Field.

W. W. Fondren, at Langston, Alabama, does not spend his money on printer's ink, protesting his friendship with a great variety of oaths, but goes to work in a business-like, unsentimental way. He does not beat around the bush, and talk about "cigars," "green goods," etc., but writes his correspondent: "I wish to employ your services to handle my greenbacks, which is the *best imitation in circulation*, and *will pass anywhere*." One dealing with Fondren can have no doubt as to the merchandise he offers. He does not make his customers take a long and expensive journey in order to get swindled, for he considerately adds: "P. S. If you wish to see and examine goods before you invest a large amount, just send five dollars, and I will send you by return mail, bills of all denominations, which amount to thirty-eight dollars, and you then can make large orders. (Send five dollars in a plain letter)."

HOW NEATLY IT IS DONE.

It is evident that W. W. Fondren has a genius for the occupation he has chosen. A bungler would have made it appear at once that the "five dollars" was the whole end, aim, and object of the scheme. W. W. adds it in a P. S., as an afterthought, and airily says: "Just send five dollars." Langston is a small place, and the person who signs himself W. W. Fondren can undoubtedly be identified without difficulty. We call upon the post master and postal officials in that quarter to do their duty.

Men Don't Figure.

Many thousands of them don't even think, and hence repeated cautions are needed—"Line upon line and precept upon precept." Frauds are wide awake, always. If one would only think when he reads one of these alluring advertisements, which offer so much for nothing, and are so liberal with their promises, and would just figure up how much money would be required to do a moderate amount of business in the particular line, he would escape the danger.

Cuban Mammoth Corn.

This is the harvest season of the seed humbugs. The mammoth rye and ivory wheat have played out, and it is now oats and corn. Ten-dollar-a-bushel oats are offered and the man who sells the seed contracts for the crop at a big price. That seems a fair thing to do. But when the crop is ready, where is the man? Just then he is scarce and you hear no more of him, but next spring he is around with another name; not the same party, oh no; not at all. A year or two ago we had the Bessarabia corn swindle; now it is the Cuban Mammoth, at twenty-five cents a packet, and the crop will be bought for five dollars a peck. If you figure up how much money would be needed to buy a few acres of corn at that price, yielding one hundred bushels an acre, the figures will be so startling that you will say "Humbug" right away.

A Southern Sharper

is using the United States mails with intent to defraud by selling Japan clover seeds and some grass seeds of various kinds which he says grow in Texas. His method is an old game. He writes from a small town in the western part of Carolina mountains to various agricultural papers describing the country and the grasses, among which he mentions seven species of *Lespedeza*, and claims they are splendid forage plants. These are all worthless seeds, excepting one known as Japan clover (*Lespedeza striata*), which affords a sparse pasture in some places. He also mentions a "winter grass" which yields 7,000 lbs. of hay per acre in April. He has fleeced many people in Kentucky and Indiana. Look out for him. He signs "J. H. Winstead," "J. Walker," and other aliases.

A New Alias

is D. C. Thompson & Co., who hail from 1,193 Broadway, and call themselves Manufacturing Chemists. This is an old humbug which has a new name every few weeks, and keeps a stock on hand for a year ahead.

The Most Heartless Swindle

is the offer of a permanent situation to young men who will loan their employer one hundred, two hundred, or two hundred and fifty dollars. These appear mostly in the city papers, to catch the attention of young men from the country, who very unwisely leave good homes on the farms to seek their fortunes. A young man applies for a situation. He is offered ten or fifteen dollars a week to begin with, but he must deposit some money as security, which will be made amply safe. He writes home to the old folks; tells them of his good fortune; the money is raised; too often borrowed for the purpose, and deposited with the hoary-headed rascal who has ruined hundreds of such young men. Some light work is given the young man, sorting a barrel of potatoes, or so—a sample barrel, he is told—which has been sorted over by scores before him. At the week's end he finds the door locked; waiting for the employer, he waits in vain, and is told by some neighbor the whole sad story. Broken hearted, without money to pay his week's board, he writes home to the old folks, who

scrape together money to get the boy home again; and the anguish of his young heart, bleeding with cruel disappointment, is known only to himself. And so ends his dream of profitable employment. Sad, isn't it?

Stock Companies.

We don't mean railroad stocks. So many people have been fleeced by the dealers in "Ten Share Lots" of these stocks that they have learned to avoid them. But the same stock sharpers now get up five stock companies located in the Far (ah! how far) West, on the plains somewhere, and offer shares or bonds for sale. Of course a very great profit is shown to be made—on paper—out of the business—but it is the same old fraud come again. There is no ranch, no stock, except the printed certificates of it which the man who "invests" gets for his money. And the investor finds the investment so safe that he himself, even, can never put his finger on it.

A Catarrh Doctor,

Which his name is Dr. J. A. Lawrence for the public, but his mother knew him as James L. Connelly, sells rubbish, which he calls "Le Grand's Arabian Catarrh Remedy. No one ever saw the Doctor in his office, which is in a poor house in Brooklyn. His circulars contain a bogus certificate, signed with the name of Superintendent Lyons, of the Brooklyn Post Office, to the effect that money could be safely sent to Dr. J. A. Lawrence. There is no lie in that, because the Brooklyn office is one of the best managed in the country. But when the U. S. Commissioner caught the rascal, and Mr. Connelly gave bail for examination, over one thousand dollars were found in the two days' mail in the post office. The Inspector found the "laboratory" at 375 Pacific st., in Brooklyn, where eight girls were busy putting up the stuff for sale. Every door in the laboratory had a hole in it; through which visitors were examined. This is only a sample of many other catarrh remedies, by which millions of dollars every year are raked in by these robbers from a suffering (in a double sense) public.

A Request to all Subscribers and Readers.

We have repeatedly requested our readers to forward us circulars of various kinds, which they might receive from Chicago, aiming at the circulation and good will of this concern. Now another of these anonymous circulars has been sent out from Chicago to the number, it is alleged, of over sixty thousand, and we ask as a special favor of our subscribers and readers, that they will immediately send these to us, because by so doing they will assist us in unearthing all these schemes. Please send along with the circular the letter which accompanies it, and you will confer a special favor upon the Publishers of the *American Agriculturist*.

A Dangerous Pastime—Affidavits.

Rascals, who from time to time are shown up, make various threats of retaliation. One precious scamp from New York, in an anonymous communication, threatens to let daylight through the habits of this or that individual unless he is let alone. "Leads" of this kind are not always safe to follow, as they not infrequently lead into camp. Another mode of threatening is to assure us of the existence of affidavits, etc. There is a certain swindler who has been repeatedly shown up here, and will be in future, unless he stops his dishonest practices, who is always threatening affidavits. Judging by the number he claims to have, we should say that the individual in person kept a whole regiment of writers, like himself, making affidavits. We would like him to trot out one of these affidavits, and let us see what it is. This everlasting threatening is growing monotonous. By all means let us have an affidavit.

The German American Agriculturist.

This is the only purely agricultural paper published in the United States. It it edited with great care by a German scholar of long experience, who knows what the German farmers and gardeners in this country require. The price is $1.50 per year. We should be glad to send a specimen copy to any of your German friends or acquaintances.

"Foes or Friends?" and "In the Meadow."

Very many new subscribers, that is, persons who have subscribed for the *American Agriculturist* this year for the first time, are sending for these two beautiful engravings, fully described in the April number of the *American Agriculturist*. Remember, they are mailed to subscribers, both of them, in a secure case made specially for the purpose, postpaid, for 15 cts. They are supplied to no persons, except subscribers to the *American Agriculturist*.

Our Family Cyclopædia.

Every day brings us numerous responses from those who have received the Cyclopædia, expressing gratification at the beautiful volume, and surprise that we should be able to furnish it. Are there not some of your friends and neighbors who would like to embrace this opportunity for securing the best work of the kind in the world, by simply paying the postage, and at the same time securing the *American Agriculturist*? Remember, the *American Agriculturist* one year and the Family Cyclopædia, post-paid, for $1.65.

Rev. E. P. Roe.

In the next number of the *American Agriculturist* appears the first of a series of articles on Out-door Life by Rev. E. P. Roe, whose charming writings have had a wonderful sale in the United States and other lands. Mr. Roe, who was in college with the President of this Company, has always displayed a remarkable talent for descriptive writing, and his experience with small fruits will now make him a valuable addition to the *American Agriculturist*. Assuming that many of our subscribers, who have not already done so, may be interested in perusing his various books, which have sold to the extent of nearly a million, we have made special arrangements for securing them. See next page.

From May to May.

Inasmuch as every number of the *American Agriculturist* is complete in itself, new subscribers can begin with this May issue and have their subscriptions continue until May, next year, twelve months.

Our Missing Subscription Lists.

All of our subscribers and friends have by this time, we assume, pretty well *located* our missing subscription lists, and understand the kind of work which has been going on in Chicago since about the middle of April, 1884. The latest dodge of the Fabricator in this line is to prepare an anonymous circular for the information of "a few friends," in reply to some "attack" on him, and then to send it indiscriminately all over the country, with an imitation type-writer letter offering a newspaper at reduced rates. If in order to expose the lies in these circulars we should call Ananias to account, he would deny that he had prepared them, and then jump into another State, after the manner he left this office.

The Sackett Plow.

In response to inquiries, we have to state that the Sackett Plow Co. has now ceased to exist, the inventor of the plow having wiped the company out through the courts. So far as existing, or not existing, however, it makes little or no difference to the stockholders, as their stock probably never was worth much. Those honorable gentlemen who were inadvertently mixed up in this unfortunate matter should not hesitate to come out and tell just how things were, explaining to the world just how the manipulator roped them in, along with the victims who bought the stock. So long as they do not come to the front and tell what they know, so long will they to a certain extent share in the odium of this fraud. It is alleged that the manipulator, just before he failed, had prepared to put many thousand dollars more of his worthless paper upon the market. Again we repeat, the honest gentlemen who were made catspaws of, and figureheads, *should not hesitate* to show up the whole affair. We ourselves were victimized to the extent of allowing the *American Agriculturist* to be used by the manipulator. He succeeded in getting in almost an entire page notice of the plow before we discovered what he was up to.

Bound Volumes of the American Agriculturist.

We can furnish bound copies of the *American Agriculturist* for 1884, and for the previous fifteen years at $2.00 per volume, 30 cents added for postage when sent by mail.

Exchanges.

If any paper entitled to an exchange does not promptly receive the *American Agriculturist*, the publisher will please immediately write us.

Worcester's Unabridged Dictionary.

The offer made on page 190, to send Worcester's Unabridged Dictionary, will be good only to May 10th; after that day, fifteen dollars, instead of ten dollars, will be required.

Kind Words.

Joseph Simmons writes from Hazel Green, Wis.:
I am better pleased with the *American Agriculturist* every number.

Isaac Townsend, Glen Cove, N. Y., writes:
I have taken the *American Agriculturist* since its commencement, and have still some of the early numbers. I have on file those of the past twenty-five years, so you may conclude that I am interested in it and hope to continue taking it as long as I live.

Wm. A. Wood writes from Kingston, Mo.:
I must say I would not do without the *American Agriculturist* if it cost twenty dollars per year. It is always learning me something just at the right time, besides being choice reading matter for my young friends.

H. R. Frankland writes from Toronto, Ontario:
My wife says she has found out more by reading your monthly than she could by reading one hundred daily papers, that is as far as the household and hints on garden, etc., and I corroborate her statement. I find a great many useful designs and good suggestions worthy of accepting. Thank you for your kind present,

H. Jarvis, M. D., writes from Oxford, Md.:
"I consider one number of the *American Agriculturist* worth the price of the subscription for a whole year. I take great interest in reading your (Mr. D. W. Judd's) letters on travel through the far West, after traveling all through the different territories myself. Will you please inform me, if you can do so, of the first year's subscription of my father, Dr. Wm. H. Jarvis? To my own knowledge it is very near or over thirty years ago. Your paper to me from a child to the present is an old friend, and I wish you many years of prosperity for yourself and paper.

General Grant.

Do not fail to secure the Engraving described in detail upon the next page of this paper.

THE GREAT SOLDIER.

A MAGNIFICENT PORTRAIT OF

GENERAL GRANT,

FROM HIS LAST SITTING.

GRAND CABINET SIZE, 18 by 24 INCHES.

Some weeks since, when the sad announcement was made to the country that General Grant could live but a short time, we made arrangements with one of the very first artists for a portrait of the General. According to the terms of contract, it has been executed at large expense, in the best line and stipple style of engraving. The great warrior is sitting in an easy chair in his now famous library. The expression on his countenance is exceedingly lifelike, and the whole picture is grand and striking in appearance, far surpassing any previous likeness of General Grant. Its great merit is due to the fact that it is from General Grant's last sitting, prior to his final prostration, that is to say, it presents him as a picture of health, just before his fatal disease compelled him to withdraw from the world. Other engravings, while they represent him in health, do not present his features and general appearance at a late period. Our own splendid lifelike portrait, executed under the special management of one of our first artists, is now, April 12th, ready for delivery.

SPECIAL PREMIUM OFFERS.—On receipt of $2.00 we will forward the *American Agriculturist* for one year, our Family Cyclopædia, and the Engraving of General Grant, all post-paid, and all to one address, or to different addresses, as may be specified.

OR, on receipt of $1.00 we will send the Engraving of General Grant, and the *American Agriculturist* for the remainder of this year (eight months), both to one address, or to two addresses, as may be specified.

OR, on receipt of $1.70 from a present subscriber for a new subscription, we will forward, post-paid, an Engraving of General Grant to the sender, and also an Engraving of General Grant, and the *American Agriculturist* for twelve months, to the new subscriber—subscription may begin with any number. If 65 cents in addition be sent, that is, $2.35, we will also forward the Cyclopædia to one of the names, as may be specified.

REV. E. P. ROE'S NOVELS

AS PREMIUMS.

On receipt of ***$2.00*** *we will send, post-paid, the* ***American Agriculturist*** *for one year, and a copy of any one of the following works by Rev. E. P. Roe:*

Barriers Burned Away.	A Day of Fate.
Opening of a Chestnut Burr.	Without a Home.
A Face Illumined.	His Sombre Rivals.
From Jest to Earnest.	A Young Girl's Wooing.

These volumes have had a sale of from forty to fifty thousand copies each, and retail at $1.50 *each.*

A Superb Number.

We think our long time readers, and many of them have been with us for over thirty years, will unite with us in pronouncing this, by far, the most superb number of the *American Agriculturist* ever issued. The great variety and freshness of matter, the large number of eminent writers, and the very handsomely executed engravings combine to make this number, in the opinion of the publishers, a most exquisite May issue. The universal expression of opinion on the part of our exchanges is that the *American Agriculturist*, during the past twelve months, has far surpassed, in every respect, any previous year of its existence. We propose during the coming year, from May to May, to make it still more popular with its readers.

Two Months More.

There are two months remaining in which to secure the splendid Premium articles we offer for subscribers to the *American Agriculturist*. Between thirty and forty thousand people have availed themselves of these Premium offers to secure valuable and ornamental articles without money and with little labor.

The Harper Publications.

"Harper's Magazine," "Harper's Weekly," "Harper's Bazar" and "Harper's Young People" we are pleased to recommend in the strongest terms to our readers. The "Magazine" is simply superb and simply magnificent. We say this unasked and unsolicited, because it is true.

Catalogues Acknowledged.

SEEDSMEN AND FLORISTS.

C. W. Dorr & Co., Des Moines, Iowa.—A full list of choice flower and vegetable seeds, with price list of implement department added.

J. L. Dillon, Bloomsburg, Pa.—Sends descriptive catalogue of choice roses, illustrated.

Frank S. Platt, 374 State st., New Haven, Ct.—A large, fully illustrated catalogue, called "The Manual of Farm, Garden, and Flower Seeds."

Wm W. Rathbone, Marietta, O., issues descriptive circular of sweet potato plants for 1885.

Robert Scott & Son, 19th and Catherine st., Philadelphia.—Complete catalogue of new and standard roses.

NURSERYMEN.

W. F. Bassett & Son, Hammonton, Atlantic Co., N. J.—Catalogue of Bellevue Nursery, with Marlboro raspberry and Atlantic strawberry as specialties.

Bush & Son & Meissner, Bushberg, Jefferson Co., Mo. an extended list of grapes with "Desirable New Grapes for 1885." This list is a wonder for the manner in which it conveys full descriptions of varieties, with the greatest economy of space.

F. K. Phœnix & Son, Delavan, Wis.—Send price lists of large and small fruits, introducing new varieties of apples, and making "root grafts" a specialty.

W. W. Rawson & Co. 34 So. Market st., Boston, Mass., send us a large and copiously illustrated catalogue of vegetable and flower seeds, with new varieties.

EDMUND D. STURTEVANT, Bordentown, N. J.—Catalogue of rare water lilies, and other choice aquatics, with directions for their culture, also list of bedding plants.

MISCELLANEOUS.

BURRELL & WHITMAN, Little Falls, N. Y.—Large and fully illustrated catalogue of cheese factory and creamery apparatus, containing all the latest improvements.

FERRACUTE MACHINE CO., Bridgeton, N. J.—New list of foot and power presses, dies, and sheet metal tools.

FEARLESS.

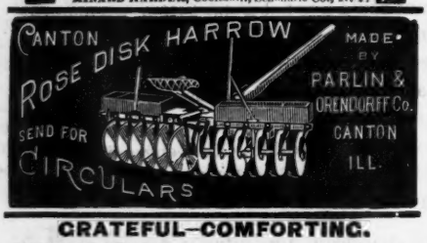
VICTORIES

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

UNEQUALED.

HIRARD HARDER, Cobleskill, Schoharie Co., N. Y.

CANTON ROSE DISK HARROW MADE BY PARLIN & ORENDORFF CO. CANTON ILL. SEND FOR CIRCULARS



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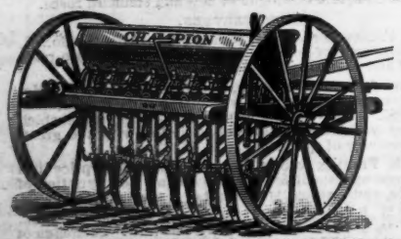

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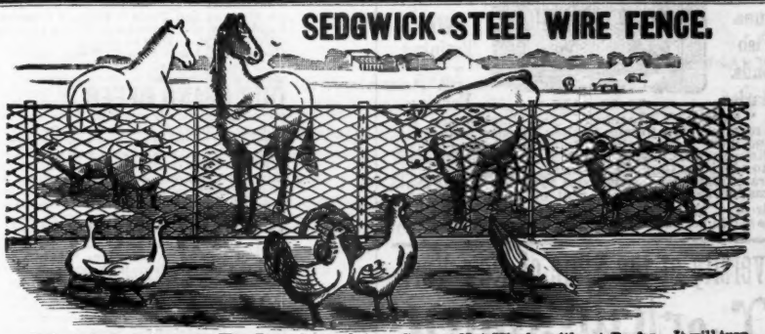

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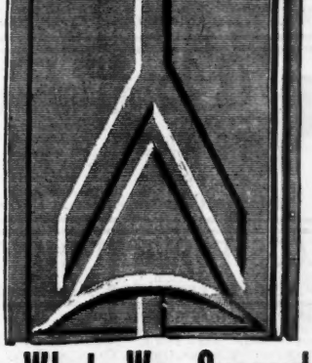

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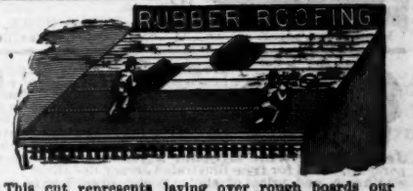

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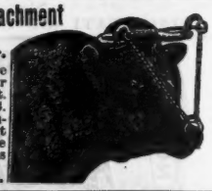

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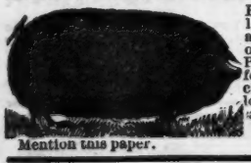

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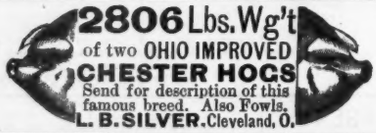

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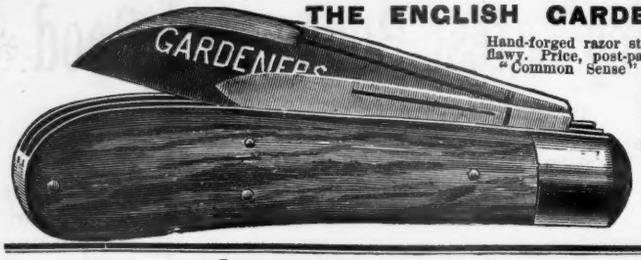

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